SE Suite 1.2
Reference User Manual

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AGFA HealthCare

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Fig. 1: CE - Label

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1 Introduction

This chapter covers the following topics:

- Introduction to the Manual
- Introduction to SE Suite 1.2

Introduction to the Manual

This section consists of the following two parts:

- Scope of this manual
- Warnings, Cautions, Instructions and Notes
- Disclaimer

Scope of this manual

This manual contains information for the effective operation of **SE Suite 1.2**. It provides detailed information on how **SE Suite 1.2** works and it gives you many practical notes and examples.

Find additional information in the following documents: the **SE Suite 1.2 Safety User Manual** available via a short cut on your desktop.

Caution: Read the complete **Safety User Manual** before starting to work with the application.

Warnings, Cautions, Instructions and Notes

The following samples show how warnings, cautions, instructions and notes appear in this document. The text explains their intended use.

WARNING: Warnings are directions which, if they are not followed, can cause fatal or serious injuries to a user, engineer, patient or any other person or can lead to a mistreatment.

Caution: Cautions are directions which, if they are not followed, can cause damage to the equipment described in this manual or any other equipment or goods and can cause environmental pollution.

Instruction: This sign typically is used in combination with the warning sign, when providing a specific instruction, which if followed exactly, should avoid the subject of the warning.

Note: Notes provide advice and highlight unusual points. A note is not intended as an instruction.

Disclaimer

Agfa assumes no liability for use of this document if any unauthorized changes to the content or format have been made.

Every care has been taken to ensure the accuracy of the information in this document. However, Agfa assumes no responsibility or liability for errors, inaccuracies, or omissions that may appear in this document.

Agfa reserves the right to change the product without further notice to improve reliability, function or design. This manual is provided without warranty of any kind, implied or expressed, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

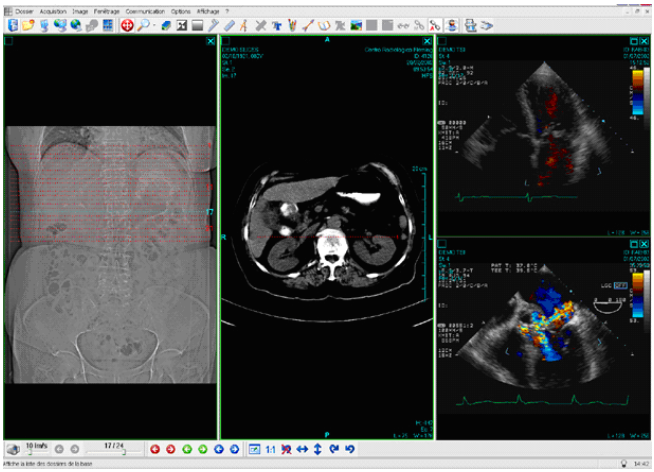
Caution: In the United States, Federal law restricts this device to sale, distribution and use by, or on order of, a licensed physician.

Introduction to SE Suite 1.2

This section covers the following topics:

- Intended Use
- Intended User
- Configuration
- System Documentation
- Options
- Training
- Product Complaints
- Compatibility
- Messages
- Compliance
- Performance
- Connectivity
- Installation & Support
- Patient Data Security
- Environmental Protection
- Safety Directions

Intended Use



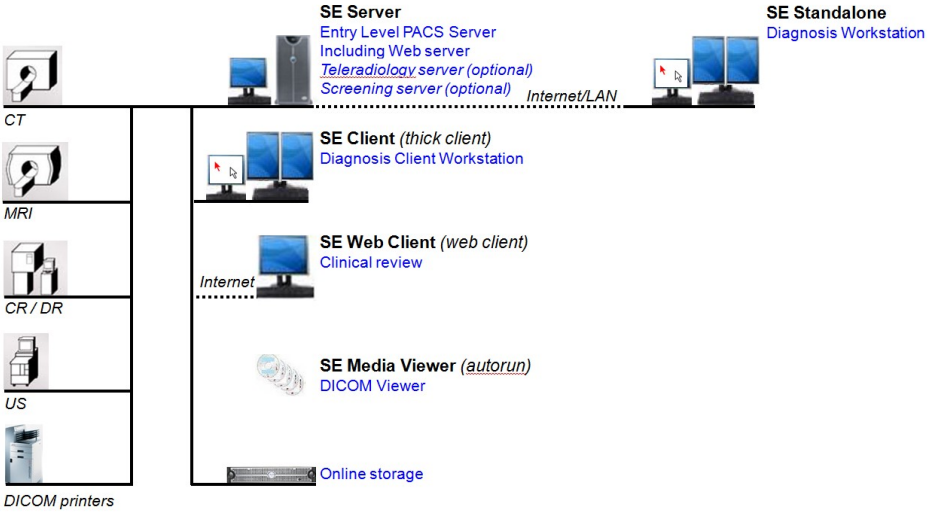
The **SE Client / SE Standalone** Workstations are intended to perform operations relating to the display, digital processing, review, transfer, storage, printing, measurements, teleradiology exchange of medical images and patient demographic information and to be integrated with separately cleared third party applications. They are intended for use by the physician to aid diagnosis and by medical professionals whenever they require access to medical images and patient demographic information.

Intended User

This manual is written for professional healthcare workers and for users of Agfa products who have received proper training. Users are considered as the persons who actually handle the system as well as the persons having authority over the system.

SE Suite 1.2 is intended to be used by Radiologist, Physician, Technologist, PACS Administrator, General Practitioner, Agfa Service Personnel (or Authorized Service Engineer), Secretary or Nurse.

Configuration



Several configurations exist for **SE Suite:**

1. **SE Standalone** configuration: standalone workstation not connected to a server.
2. **SE Client / SE Server** configuration: one or several clients connected to a server.
3. **SE Web Client / SE Web Server** configuration: one or several web clients connected to a server.
4. **SE Full Suite** configuration**:** Client / Web Client / Server / Web Server.
5. **SE Media Viewer** is provided with **SE Standalone** and **SE Client**

System Documentation

The documentation consists of this **Reference User Manual** (Document number 2463, in English only), the **Safety User Manual** (Document number 2464) and **Minimum Hardware and Software Requirements** (Document number 2465). The documentation shall be kept with the system for easy reference.

Options

All functionalities are embedded by default in SE Standalone/Client/Server except the '**WKL**' (Worklist) option for DICOM Modality Worklist provider functionality.

The **OrthoView™** software integration is available for US and Canada markets only.

Training

The user must have received adequate training on the safe and effective use of **SE Suite** before attempting to work with it. Training requirements may vary from country to country. User must make sure that training is received in accordance with local laws or regulations that have the force of law.

Your local authorized Agfa Healthcare dealer can provide further information on training. The user must note the following information in the preliminary section of this manual:

- **Intended Use**
- **Intended User**
- **Safety Directions**

Product Complaints

Any health care professional (for example a customer or a user) who has any complaints or has experienced any dissatisfaction in the quality, durability, reliability, safety, effectiveness, or performance of this product must notify his local authorized Agfa Healthcare dealer who installed this product, or, ultimately Agfa Healthcare.

If the device malfunctions and may have caused or contributed to a serious injury of a patient, the local authorized Agfa Healthcare dealer who installed this product, or, ultimately Agfa Healthcare must be notified immediately by telephone, fax or written correspondence to the following address:

Agfa Healthcare Service Support - local support addresses and phone numbers are listed on www.agfa.com
Agfa Healthcare - Septestraat 27, 2640 Mortsel, Belgium
Agfa Healthcare - Fax +32 3 444 7094

Compatibility

SE Suite 1.2 software must only be used in combination with other products or components if these are expressly recognized by Agfa as compatible. You should consult Agfa before making changes to the configuration or before adding other software to your system.

Changes or additions to the equipment must only be carried out by persons authorized to do so by Agfa. Such changes must comply with best engineering practice and all applicable laws and regulations that have the force of law within the jurisdiction of the hospital.

Messages

Under certain conditions the **SE Suite** software will show a dialog box in the middle of the screen containing a message. This message may tell that either a problem has occurred or that a requested action cannot be performed.
The user must read these messages carefully. It will provide information on what to do from then on. This will be either performing an action to resolve the problem or to contact the local authorized Agfa Healthcare dealer.

Compliance

This paragraph sums up the directives, standards and harmonization initiatives **SE Suite 1.2** complies with.

DIRECTIVE

SE Suite software has been designed in accordance with the MEDDEV Guidelines relating to the application of Medical Devices and has been tested as part of the conformity assessment procedures required by 93/42/EEC MDD (European Council Directive 93/42/EEC on Medical Devices).

- ANNEX I - ESSENTIAL REQUIREMENTS - GENERAL REQUIREMENTS
  The devices are designed and manufactured in such a way that, when used under the conditions and for the purposes intended and, where applicable, by virtue of the technical knowledge, experience, education or training of intended users, they will not compromise the clinical condition or the safety of patients, or the safety and health of users.
- ANNEX II - EC DECLARATION OF CONFORMITY
  Full quality assurance system ISO 13485
- ANNEX X - CLINICAL EVALUATION
  The clinical evaluation follows a defined and methodologically sound procedure.

STANDARDS

- ISO 14971:2000, Medical devices - Application of risk management to medical devices

Performance

SE Suite software is designed to store and manage data volumes of 25000 studies per year maximum (estimated at a size of 40-80 Mb per study by average). Recommended storage volume limits of 1-2 Tb per year should not be exceeded.

Connectivity

SE Suite software communicates with other devices in the hospital network using the following protocols or standards:

- DICOM: See ***'SE Suite 1.2 DICOM Conformance Statement'***
- IHE: See '***SE Suite 1.2 DICOM Conformance Statement'***
- HL7: '***SE Suite 1.2 HL7 Conformance Statement'***

Installation & Support

SE Suite software installation and configuration is to be performed by Agfa Healthcare or an authorized and trained Agfa Healthcare dealer.

The integration of this software on properly selected hardware is a critical element when using this software for the purposes described on page **Error! Bookmark not defined.**, and should only performed by Agfa Healthcare or an authorized Agfa Healthcare dealer.

A limited number of configuration tasks can also be performed by the customer after a training course has been provided by the authorized Agfa Healthcare dealer, or by Agfa Healthcare. Contact your local authorized Agfa Healthcare dealer for more information.

Operating System

The **SE Client/Standalone** runs under Microsoft®:

- Windows® XP SP2 and SP3
- Microsoft Windows® Vista™ Business Edition SP1 32bit

The **SE Server (including Web Server)** runs under Microsoft® Windows® Server 2003 SP2

Software Installation

A customized setup must be done for your site by authorized service engineer, to register in the workstation the different image sources and printers that will be connected to **SE Client**, and adjust application parameters to maximize performance and image quality.

WARNING: **To guarantee the complete image quality chain and to be allowed to diagnose with SE Client software, it is mandatory to connect monitor(s) DICOM calibrated and to control regularly the quality of the display according the recommendation of your monitor vendor.**

Instruction: Refer to your monitor vendor quality control guidelines to define your quality control procedures and calibrate the monitor(s).

Instruction: In multi monitor configuration, check that screen calibration is the same.

Software Protection

SE Suite components are licensed via a software license file stored on your computer. This key contains your base license as well as the options you purchased for the software.
The behavior of application will change depending on the status of the license file:

- Application will operate normally with a valid license installed.
- If no license file is installed, application will automatically switch to demonstration mode. In demonstration mode, most of application's features are operational (optional features and DICOM communications require a valid license), but all images displayed, printed or sent are marked with a "DEMO" mark displayed across the images.
- If a license file is installed, but inaccessible anymore, application will enter a grace period to allow full continued use for 30 days.

WARNING: **In addition to license controls, application contains controls based on the release status of the software. Unreleased software will contain a banner that reads "Pre-release version - not intended for clinical use".**

Language Support

SE Suite currently supports:
- **Latin 1 languages** (ISO - 8859 - 1) such as English, French, German, Dutch, Danish, Finnish, Italian, Norwegian, Portuguese, Spanish, Swedish
- **Latin 2 languages** (ISO - 8859 - 2) such as Croatian, Czech, Hungarian, Polish, Romanian, Slovak, Slovenian
- **Latin 4 languages** (ISO - 8859 - 4) such as Estonian, Latvian, Lithuanian
- **Latin 5 languages** (ISO - 8859 - 9) such as Turkish-TR.
- **Cyrillic languages** (ISO-8859 - 5) such as Bulgarian, Russian
- **Modern Greek** (ISO-8859-7)

Note: The language setting must be configured by an administrator account. If left unconfigured, application will default to English.

Software Information & Support

To know the software version of application, go in the information menu (the question mark at the right of the menu bar) and click **About.**
The **About** dialog box gives information about your **SE** software.
This information, in addition with what you get in the **Technical Support** panel, which gives information on your system environment, must be communicated to a certified third party for any support request.

Patient Data Security

The hospital must ensure that the patients' legal requirements are met and that the security of the patient data is guarded.
The hospital must define who can access patient data in which situations.
The hospital must have a strategy available on what to do with patient data in case of a disaster.

Environmental Protection

WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life. The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste.

The WEEE logo on the product or on its box indicates that this product must not be disposed of or dumped with household waste. The owner of the equipment is liable to dispose of all electronic or electrical waste equipment by delivering it to the specified collection point for recycling of such hazardous waste. Collection and proper recovery of electronic and electrical waste equipment at the time of disposal will allow the producer to help conserve natural resources.
Recycling of the electronic and electrical waste equipment will ensure safety of human health and the environment. For more information about electronic and electrical waste equipment disposal, recovery and collection points, please contact your local waste disposal service or producer / distributor of this equipment.
If your equipment contains removable batteries or accumulators please dispose of these separately according to local regulations.

The WEEE logo EN 50419: 2005

Safety Directions

WARNING: Read the AGFA Healthcare System Safety User Manual.

WARNING: Strictly observe all warnings, cautions, notes and safety markings within this document and on the product.

WARNING: Safety is only guaranteed when trained Agfa personnel have installed SE Suite.

WARNING: All Agfa medical products must be used by Agfa trained and qualified personnel.

WARNING: The user is responsible for judging image quality and controlling environmental conditions for diagnostic softcopy or print viewing.

WARNING: It is the responsibility of the user to use the SE Client workstation under the same ambient light conditions defined for the calibration of the diagnostic monitor against DICOM grayscale standard display function.

WARNING: It is the responsibility of the user to diagnose images with compression ratios that are compliant with diagnosis purpose.

WARNING: Users performing mammography examinations must always use grayscale monitors approved for mammography with a minimum of 5 megapixel resolution.

WARNING: Any error (crash/ lock up) leading to an image processing failure can cause loss of diagnostic information.

WARNING: Follow the hospital quality assurance procedures to avoid errors in the image processing.

Caution: To avoid images being lost due to a power failure, the workstation and the digitizer have to be connected to un-interruptible power supply (UPS) or an institutional standby generator.

Caution: Position the Agfa product so that it is possible to disconnect the mains power connection if required.

Caution: Changes, additions or maintenance to the Agfa products carried out by persons without appropriate qualification and training as well as using unapproved spare parts may lead to serious risk of injury and damage to the equipment as well as making the warranty void.

2 Getting Started

This chapter is intended to explain how to launch the application and describe the application main windows.

The current chapter contains the following topics:

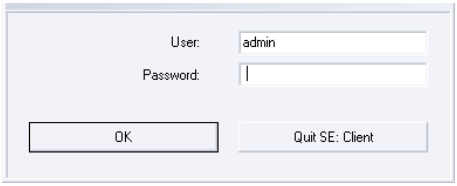
❑ Starting SE Client

❑ SE Client - Application Window

Starting SE Client

SE Client Login

When started, application asks you for your login and password to use the application.



Several users, each with his own login and password, can be created later on by administrator using the independent user administration tool.

WARNING: Each user profile is derived from a standard profile (administrator, classic user and guest). When disabling options, user and service personnel have to keep in mind that these configurations will lock files, functionalities and tools access. As a result, users may not be able to diagnose a kind of series/images or perform relevant and specific actions.

Instruction: In this case please contact your administrator to modify your profile and enable the required options.

*Note: The advantage of having your own login and password is that **SE Client** will save several parameters as your personal preferences, independently from other user's preferences (columns displays, columns position and size; customized filters, and so on).*

SE Client Startup Tutorial

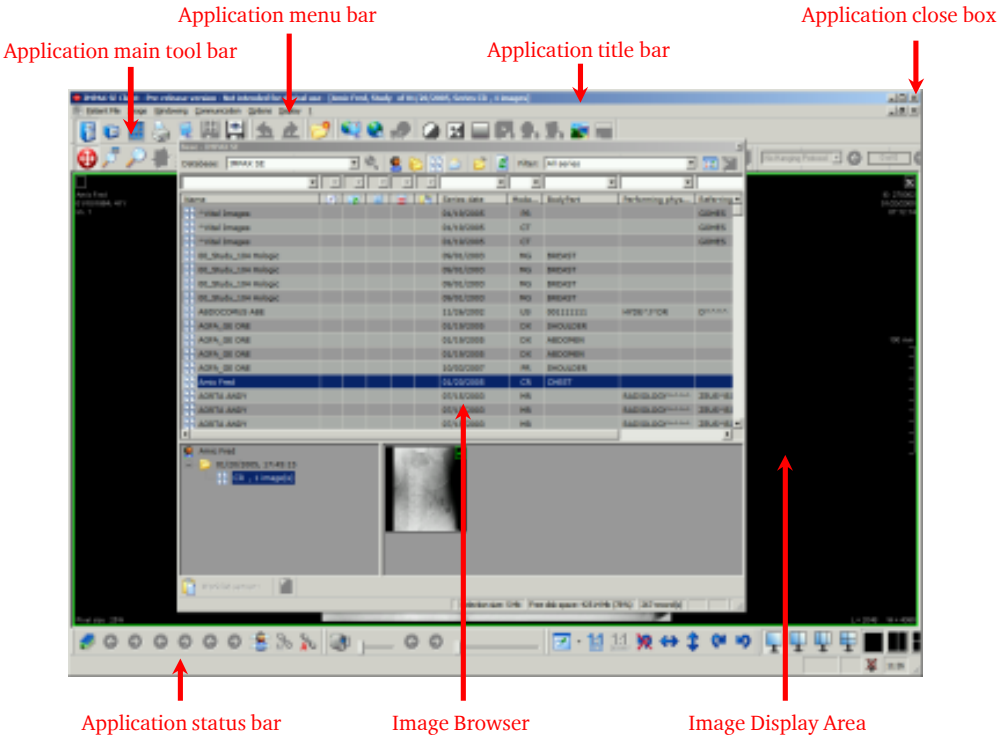
SE Client can present you with a startup tutorial (link to a web page or document) to assist you in getting familiar with the application. If you would like to turn this on or off open **Options** menu and point to **User Preferences** submenu, then select **General** (See section Starting SE Client Preferences set up).

SE Client - Application Window

Once you have given your login and password, you get **Main Application Window** as shown below.

At the very bottom left of the window, in the **Status Bar**, you have a message telling you the date and time of the last time you logged in the application.

Note: It is important that you become familiar with the terminology of the different zones of the application window. We are going to use all these terms a lot in the following chapters.



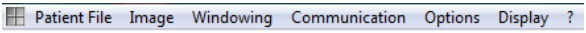
- **Application Title Bar**

This bar at the top of the application window, displays information like the application name or information about displayed images data (e.g. Patient Name, Study Date etc.). It is as well used to move the application window.

- **Application Close Box**

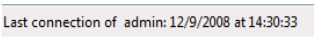
This cross in the top right corner, allows you to close the application window. **SE Client** then goes back to login dialog box, so a new user can log in, or you can click the **Quit SE Client** button to exit the application permanently.

- **Application Menu Bar**



The application menu contains all the major functionality of **SE Client**. Menus and the menus items can change depending on the context of the application at a given time or user profile account.

- **Application Status Bar**



The **Status** bar displays useful contextual information.

- **Application Main Tool Bar**

This toolbar contains the most frequently used functions of the application, allowing quicker access than the menus. This toolbar is split in two; general tools (on the left) and functions to apply on images (on the right).

- **Image Browser**

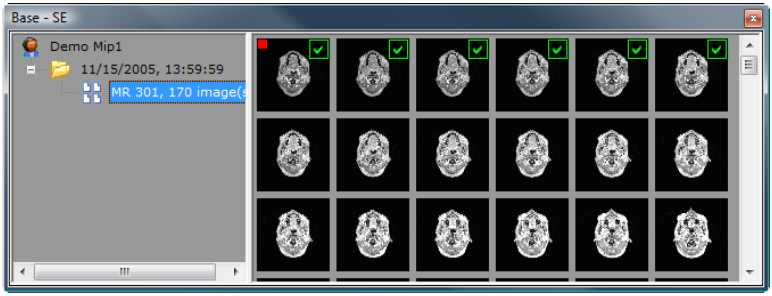
The image browser is a key window for **SE Client**. In this window, you see all the patient studies that are stored on your **SE Client** station. This is where you browse your database(s) content, preview images, open studies, import or export images, record CDs, etc.
This window is independent and can be placed, moved, or resized as you wish. It has its own title bar, close box, toolbar and status bar, working the same way as for application window.

- **Image Area**

The biggest zone of the application window is the image display area, where all opened images will be displayed.
The way images are displayed on screen depends on your display configuration.

- **Series Tray**

SE Client includes an optional series tray that provides a small preview of a patient's other studies stored in **SE Client** without leaving the Image area.



Note & Tips for Toolbars:
You can reposition many toolbars to either the top, bottom, left or right border of the application window, or leave them as floating toolbars on screen. To move a toolbar, click and hold it by its left edge and drag it to the desired position.
You may also change the size of the buttons in the toolbars. Select either the small, medium or large size in ***Customize Toolbar*** *item of* ***Display*** *menu.*
To reset the toolbars to their default settings, select ***Customize Toolbar*** *item of* ***Display*** *menu and click* ***Reset.***
To determine the function of a toolbar button, hover over it to display a tool tip with a short description of the tool. A more detailed explanation about the function is given at the same time in the status bar.

3 The User Interface

This chapter about the user interface gives you extensive information on how to use the different parts of the application.

The current chapter contains the following topics:

☐ Image Browser

☐ Image Display Area

☐ Configuring the image area

☐ Acquiring Images

☐ Retrieving images from a server

☐ Print Layout

☐ Communication

Image Browser

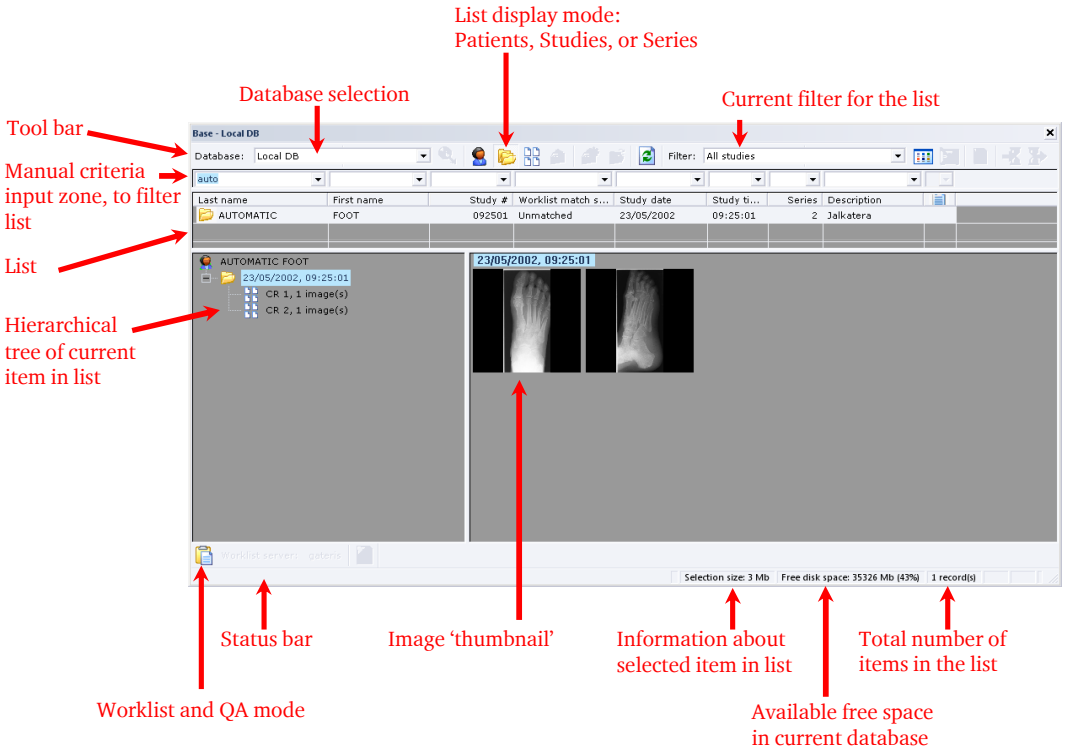
- Presentation
- The toolbar
- The status bar
- The list
- The hierarchical tree
- Images thumbnails
- The Worklist and QA functionalities
- Contextual menus in Image Browser
- HL7 Integration
- SE Worklist Client

Presentation

The **Image Browser** is a key window for **SE Client** application.

It is open and closed using this icon in the very left of the main toolbar, or by pressing **<F2>** key or by selecting **List** item in **Patient File** menu**.**

In this window, you browse the database(s) connected to **SE Client**, manage all patients and studies information, and select images to display.



This window is totally independent and can be placed, moved, or resized to what you prefer.

It has its own title bar, close box, toolbar and status bar, working the same way as for application window.

Putting apart the toolbar and status bar, the Image Browser is divided in three main zones:

- the **list** (top),
- the **hierarchical tree** (bottom left)and
- the images **thumbnails** (bottom right).

These three zones are separated by narrow gray dividers (or “splitters”) that you can move as you wish to give more or less space to a particular zone.

To move a splitter, place your mouse over it (the pointer changes to a vertical or horizontal divider), click & hold the left mouse button down, move the splitter with the mouse to the desired position and release the mouse button.

Note: The Image Browser size and position, as well as splitters position, are saved by the application when the window closes, so the window will be restored exactly the same the next time you will open it.

Instruction: The Database window behavior when opening images can be customized by your administrator. Database window can:

- Remain open when images are displayed (useful when using a monitor dedicated to Database Window display).

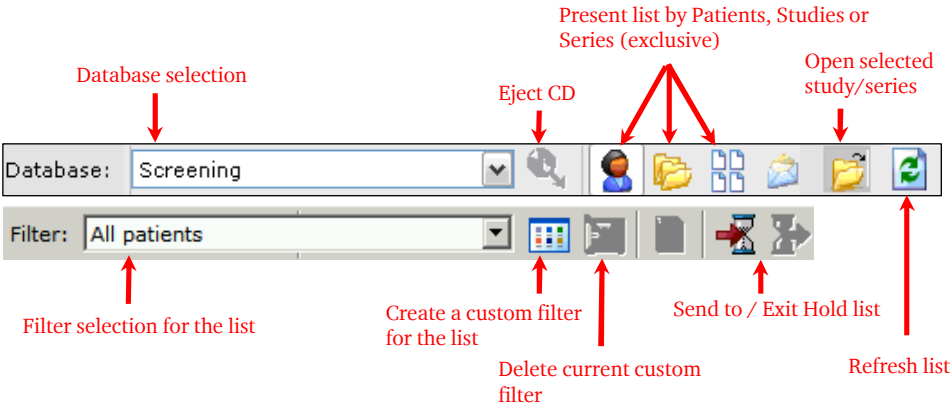
- Be closed when images are displayed (useful when not using a monitor dedicated to Database Window display).

- Switch to Series Tray display.

The toolbar

Buttons and controls

The toolbar of the Image Browser is composed of icons and controls that give you a quick access to main functions in this window.



Database selection

The drop-list for database selection allows you to choose the database you want to work with. You can only select one current database at a time.

Default current database when you install **SE Client** is **Main database**.

You have only one main database. The main database is the one where will be stored the medical studies you receive from other stations or image modalities. It is also where **SE Client** stores the configuration of your station (directory, preferences, logs, etc.).

WARNING: Be aware that there is a difference between the main database and the current database. The main database is open by default and stores all saved preferences. The current database is the database currently selected in the drop-list to display its content. The current database can be the main database or not, but selecting a database just makes it current, it doesn't make it the main database.

In **SE Client**, you can connect to as many databases as you want.

For example, for particular purposes, you may need to have a separate database to store some interesting studies you want to keep. You can easily copy studies from one database to another.

A database can be located on a hard disk of your workstation (like the Local database), or somewhere else on the network where **SE Client** is connected.

Instruction: Database modification or creation must be done by an experienced **SE Client** administrator.

■ Reading/Burning a DICOM CD-DVD

The medical images standard “DICOM” allows workstations to burn some CD in a particular format containing studies and images.

This CD standard is called “DICOM Part. 10”, or “DICOM Interchange” or sometimes even “DICOMDIR”.

The CD-DVD media is a very convenient way to exchange studies between stations that are not interconnected or with remote sites.

It can happen that you own or received such a CD-DVD and want to review or copy its content with **SE Client**. These CD-DVD are just considered by **SE Client** as removable databases.

CD-DVD insertion

Insert the CD-DVD in the CD-DVD drive. **SE Client** will automatically detect it, add it to the databases drop-list, select it as current database, then analyze the content and display the content.

During content analyze, a progress bar is displayed in status bar, then the CD-DVD content is displayed in the Image Browser like any other database.

In the databases drop-list, the CD-DVD is called Media ‘Volume_number’, giving you the name of the media, with the path to the drive where it is inserted.

Review CD-DVD content

Once a DICOM CD-DVD has been mounted as a database by **SE Client**, you can browse the content like any other database (by patients, studies or series), but the database is read-only.

You can only read information from the CD-DVD, not modify or delete, allowing to display or copy images from the CD-DVD to another database.

Display images from CD-DVD

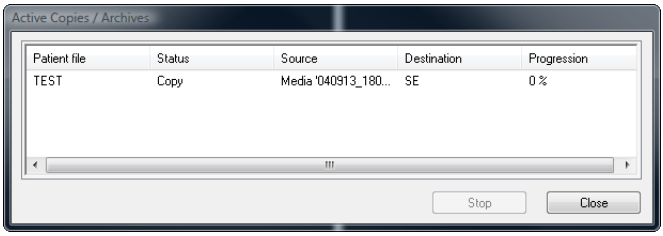
To open images for display, double-click a study or series in the list, or an image thumbnail.

The way images are displayed on screen depends on your display configuration (See section **Set the presentation of images**).

Copy images from CD-DVD to another database

To copy one or several elements (patients, studies or series) from a CD-DVD (or from a first database) to your local database, select the elements in the list, right click and select “Copy to…”, then select the destination database in the dialog that pops.

The window of active copies will automatically open, to show you the copy progression. You can select a pending copy and click **Stop** button to stop copy process.



Warning: If a copy is stopped during process, DICOM instances (Images, Reports etc.) copied before stopping action won't be automatically removed from the database by the application. Therefore, Patient/Study/Series data won't be complete. Make sure you removed manually the created data from the database (Right click on Patient or Study or Series in Database Window and Delete) to prevent diagnosis of not complete studies. If Deleting is not possible, ask your administrator to do it for you.

CD-DVD ejection

After insertion, the CD-DVD is locked in the CD-DVD tray by **SE Client**, so you can't eject it using the drive ejection button.

To eject it, ensure the CD-DVD is selected as current database, then click the eject button, just at the right of the drop-list.

To force the CD-DVD ejection, click the **Unlock CD-DVD Tray** item of **Options** menu.

CD Burning

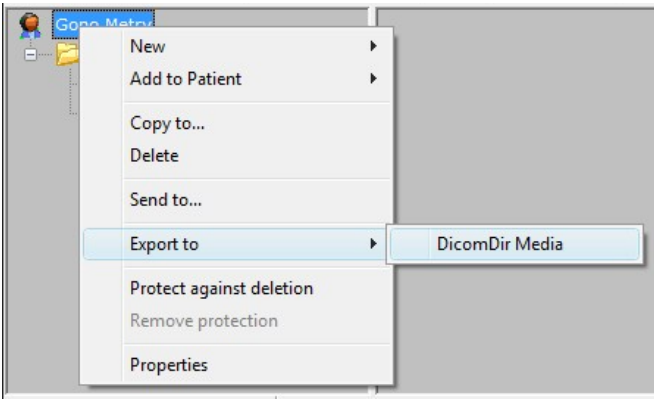
It is possible to burn DICOMdir on CD with SE Client / Standalone applications.

Instruction: Software Nero 8.1 or higher version and a CD recorder are required to burn DICOMdir on a CD.

Warning: Burning system is not able to generate CD covers with Patient demographics and Study information (e.g. Study date, Institution Name, etc.). A third system should be implemented (e.g. CD-DVD cover stickers editor and printer) to ease CD identification.

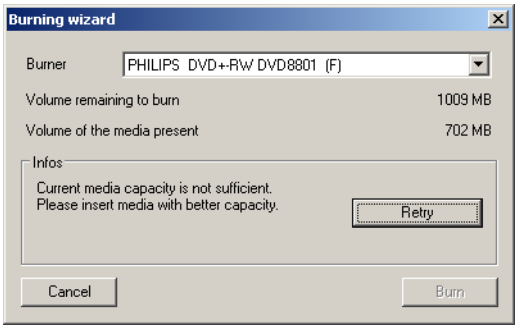
Elements can be exported as they are presented on screen to CD media. The CD you create will be fully compliant with the IHE PDI profile Insert a CD in your burner device and then select a patient, a study or a series in the Browser window.

Right click on item and select **Export to DICOMdir Media** in contextual menu.



The burning process is silent (no progression bar), wait until the CD trail opens automatically after burning session.

Note: allows burning several patients/studies/series on a DICOMDIR. If the media is not big enough for the selection, this information is displayed:



Instruction: By default, the SE Media Viewer is automatically added on the burnt DICOMdir CD. You can ask your administrator or service personnel to disable this viewer copy.

DICOM and the list presentation

DICOM, the medical imaging standard, is at the heart of **SE Suite**. This standard describes files formats for medical images and also organization of medical data for studies, images, visits, etc. This organization is very hierarchical, especially for **patients**, **studies**, **series** and **images** concepts:

- A DICOM database can have several **patients**. The **patient** is the highest level of the DICOM hierarchy.
- Each **patient** can have one or several **studies**. A **study** can be assimilated as a medical imaging exam at a given date.

  For example, a patient coming today for a CT scan exam will have a new study for this exam in his patient file. If he comes back in one month for an ultrasounds exam, a new study will be created, and so on.
- Each **study** can contain one or several **series** of **images**. A **series** is a group of **images** that have been acquired together by the imaging modality.

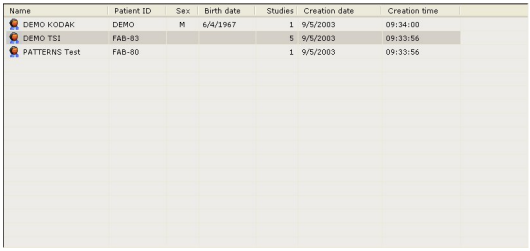
  For example, a CT scan exam can be composed of three different acquisition steps. Each acquisition, composed of several images, will create one series of images in the study.
- Each **series** can contain several **images**.

  For example, a CT scan exam with a series of 300 images, each of them represents body slices at different positions.

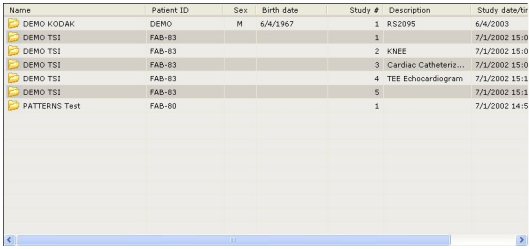
These three buttons are used to select which DICOM information to display in the list: **patients**, **studies** or **series**.

The buttons are exclusive, that is, the list can only show one kind of information at one time, **patients**, **studies** or **series**.

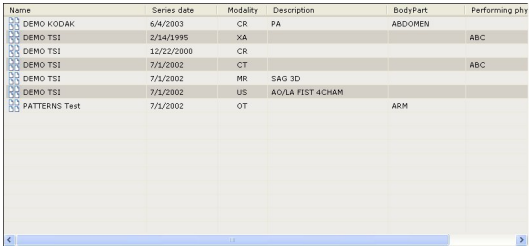
To your convenience, you can switch between the three modes at any time.



List presented by **patients**



List presented by **studies**



List presented by **series**

List refresh

This button forces **SE Client** to refresh the list. This is sometimes needed to be sure the list presents all the last modifications recently made in the database, or the last received exams.

List filtering

In any mode (patients, studies or series), the list can be filtered to display the database reccords that comply with some particular criteria, and hide the others records.

Filtering is crucial when your database has a lot of records, to quickly find and display a short list of the records that you need, instead of browsing the hundreds of records of your database.

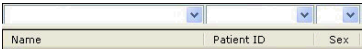
The Image Browser offers you two ways to filter the list, either using the filters drop-list, or entering some filtering criteria manually.

The filters drop-list

This drop-list is very convenient, because it offers some predefined filters. For example, a filter for the studies of the day, or one for the studies of the last 7 days.To filter the list with a particular filter, just select it in the filters drop-list.

The manual input fields

At the top of almost each column of the list, you find a white zone where you can type some text. These input fields allow you to enter some filtering criteria manually.



For example:

- *If you want to filter the list to only see patients with a name starting with "DE", type "DE" in the input field at the top of column "Name", then press <Enter> on the keyboard.*

- *In the list presented by series, if you want to see only series of modality CR, type "CR" in the input field at the top of column "Modality", then press <Enter> on the keyboard.*

Note: The input fields at the top of the columns are not case sensitive.

You can of course combine several criteria at the same time, by typing them in several input zones. For example, in the list presented by series, typing "CR" in the input field at the top of column "Modality" and as well "DE" in the input field at the top of column "Name", then <Enter>.

Note: once you have typed some text in an input field, this text is automatically saved and kept in the corresponding drop-list, so you can access it quickly if you need it again.

Note: In some drop-lists, some standard text is even filled automatically by application, like for example the standard DICOM modalities or body parts.

The following shortcuts are possible when searching by date:

Possible date formats	**Meaning**
mm/dd/yyyy	Date specified by its month (mm), day (dd) and year (yyyy)
d	Day of today
m	Month of today
y	Year of today

If placed **before** a date, operator ".." means "**before this date**".

If placed **after** a date, operator ".." means "**after this date**".

If placed **between** two dates, operator ".." means "**from this date to that date**".

Note: The examples below, filtering the list on series date, will allow you to better understand the mechanism and logic of associating date formats and date operator to filter the list on dates:

To filter series list on…	What to type in input field of "series date"
Series of the 7/1/2002	"7/1/2002"
Series until end of 2002	"..12/31/2002"
Series since beginning of 2002	"1/1/2002.."
Series of 2002	"1/1/2002..12/31/2002"
Series of today	"d"
Series of yesterday	"d-1"
Series of the last week	"d-6.."
Series of this year	"y"
etc…	

Note: This mechanism applies to all date fields (patient's birth date, study date, series date…).

If you entered several criteria in several fields, you need to erase each field's content to get the full database that can be annoying. One nice hint is to switch between two database views (e.g. Patient view and Study view)to reset criteria.

Date format in filter must be the same as the one displayed in columns (DD/MM/YYYY or MM/DD/YYYY, etc…).

WARNING: **One of the typical traps of filtering the list is that it hides some of the records of your database to display only a selection of them.**

If a particular filter is active on the list but you didn't pay attention to it, the list may look like some records you are searching for, are missing. In fact, they are just hidden because they don't comply with current filter.

Instruction: As a security, before searching for a particular record in the list, always check that current filter and manual input fields match the records you are looking for.

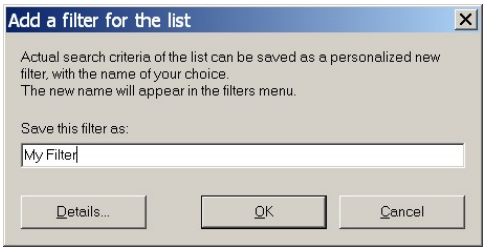
Adding a custom filter to the filters drop-list

SE Client gives you the possibility to create some custom filters that will be added to the filters drop-list. Each custom filter created is only for one list presentation (patients, studies or series).

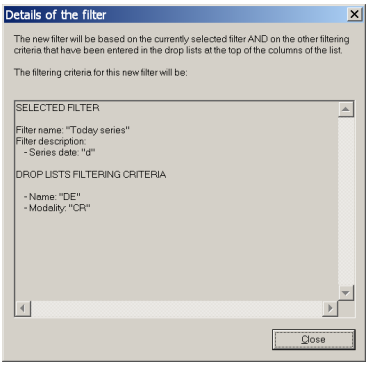
Custom filters are saved independently for each user.

To create a custom filter:

1. If you want to start from an existing filter, select this filter in the filters drop-list, then enter one or several criteria in the input fields at the top of the columns of the list.
2. Press the "Add Filter" button
3. In the dialog that pops up, give a name for this new filter. This name will appear in the filters drop-list.


Add a filter for the list
Actual search criteria of the list can be saved as a personalized new filter, with the name of your choice.
The new name will appear in the filters menu.
Save this filter as:
My Filter
Details...
OK
Cancel

4. If you want, click the "details" button to see the combination of criteria used for this filter. This check is not mandatory, but it is a good way to understand and verify what your filter actually does.


Details of the filter
The new filter will be based on the currently selected filter AND on the other filtering criteria that have been entered in the drop lists at the top of the columns of the list.
The filtering criteria for this new filter will be:
SELECTED FILTER
Filter name: "Today series"
Filter description:
- Series date: "d"
DROP LISTS FILTERING CRITERIA
- Name: "DE"
- Modality: "CR"
Close

In this example, we used filter “Today series” as a base, and added criteria “name=DE” and “modality=CR”.

To summarize, this filter will display CR series of today, for all patients beginning with “DE”.

5. Close the details dialog and click “Ok” in the previous dialog to validate filter creation. The new created filter will appear in the filters drop-list.

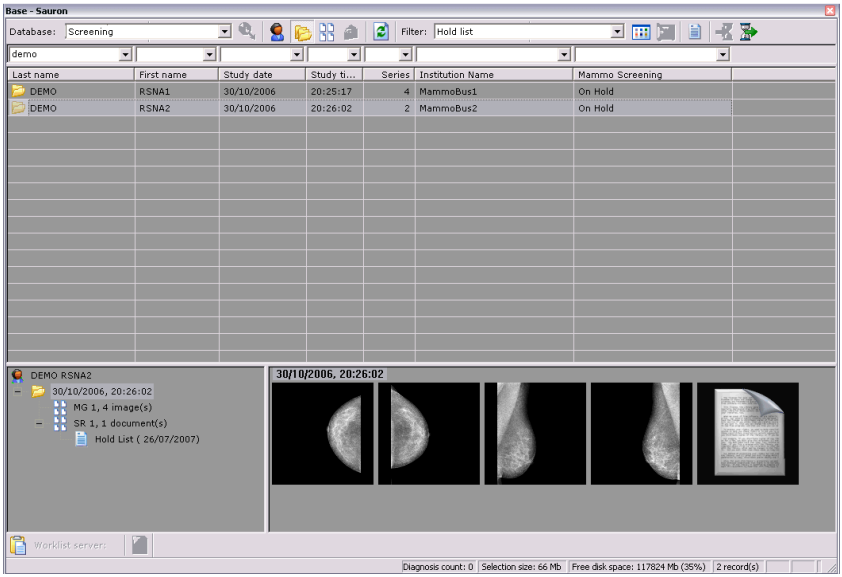
■ Deleting a custom filter from the filters drop-list

To delete a custom filter, first select it in the filters drop-list, then click the “Remove selected filter” button in the toolbar. If you select “Yes” in the confirmation dialog, the filter will be permanently deleted.

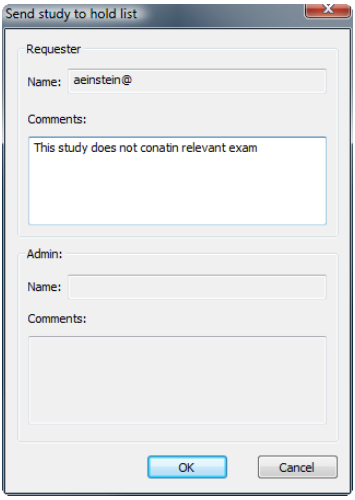
*Note: You can only delete custom filters. All default filters that you have by default when you start **SE Client** cannot be deleted.*

■ Send to / Exit from Hold list

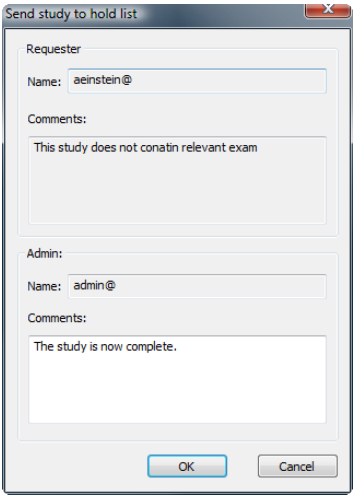
A specific hold work list is available in the study view of the browser. It is intended to store studies that are not diagnosable and need retakes.



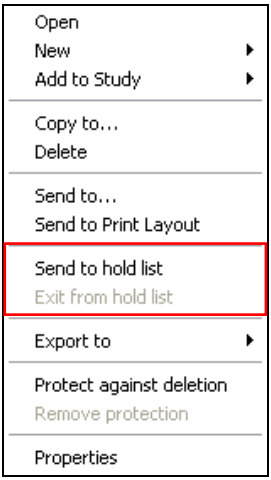
Radiologist can send a study in the hold list by clicking the send to hold list button. Then, Radiologist has to specify the reason in the **Comments** field.



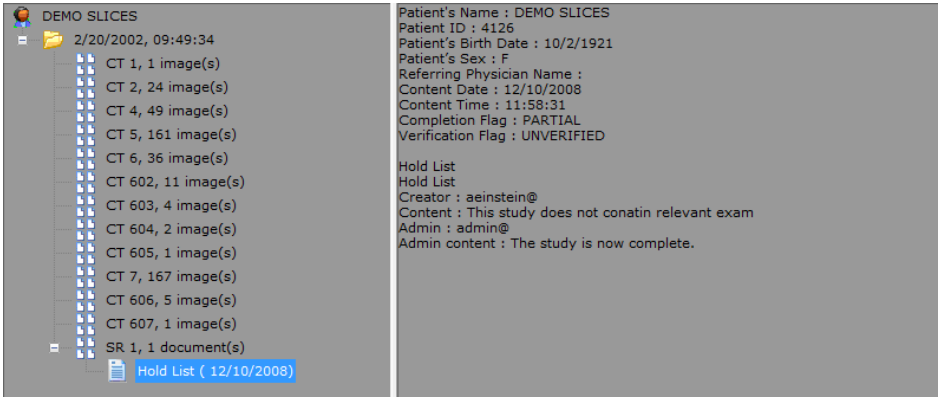
An administrator can remove a study from the hold list by clicking the exit from hold list button. Then, administrator can add information in the **Comments** field.



These functionalities are also available by right click menu:

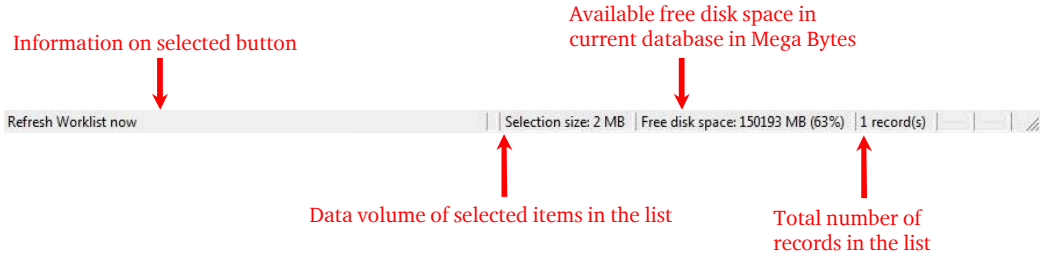


A report is created in the relevant Study to save information about Hold List tasks. This report can be opened by double clicking the report icon in the database window tree view but is not editable anymore.


DEMO SLICES
2/20/2002, 09:49:34
CT 1, 1 image(s)
CT 2, 24 image(s)
CT 4, 49 image(s)
CT 5, 161 image(s)
CT 6, 36 image(s)
CT 602, 11 image(s)
CT 603, 4 image(s)
CT 604, 2 image(s)
CT 605, 1 image(s)
CT 7, 167 image(s)
CT 606, 5 image(s)
CT 607, 1 image(s)
SR 1, 1 document(s)
Hold List (12/10/2008)
Patient's Name : DEMO SLICES
Patient ID : 4126
Patient's Birth Date : 10/2/1921
Patient's Sex : F
Referring Physician Name :
Content Date : 12/10/2008
Content Time : 11:58:31
Completion Flag : PARTIAL
Verification Flag : UNVERIFIED
Hold List
Hold List
Creator : aeinstein@
Content : This study does not conatin relevant exam
Admin : admin@
Admin content : The study is now complete.

The status bar

The status bar of the Image Browser gives some useful information about the window and its elements.


Information on selected button
Available free disk space in current database in Mega Bytes
Refresh Worklist now
Selection size: 2 MB
Free disk space: 150193 MB (63%)
1 record(s)
Data volume of selected items in the list
Total number of records in the list

- **Information on selected button**

This zone gives you some information about a particular button of the toolbar. This information is more detailed than the tooltip displayed at the mouse pointer when placing it over the button.

To display information about a button, move the mouse pointer over the button icon.

Note: Information on selected button in status bar is not available for all the buttons of the browser window .

- **Data volume for selection**

This field gives you the volume of data (in megabytes) corresponding to the selected items in the list.

This information can be useful, for example to know the size of a study before copying it or burning a CD.

- **Free space in database**

This area gives you the available free space (in megabytes) of the current database, with the equivalent in percentage.

This information is useful to know how much your database hard disk is occupied and avoid saturation.

*Note: **SE Client** has an optional Automatic Cleanup function that may be available depending on your installation to prevent the database from filling.*

- **Number of records**

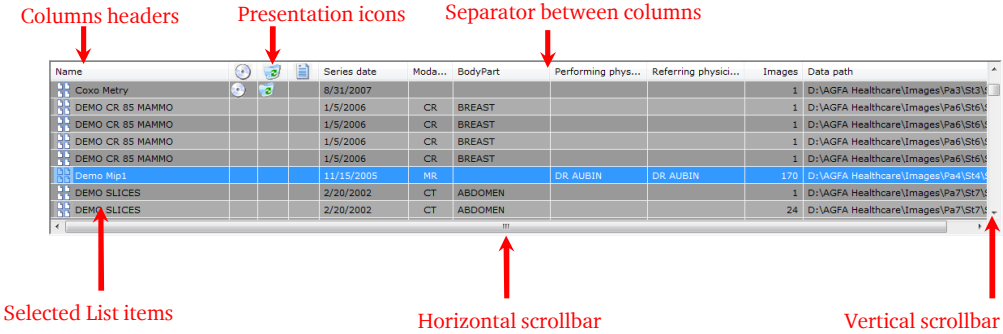
  This field gives you the total number of lines (records) in the list.

  This information can be useful to know how many records of current database comply with a particular filter.

The list

- **Presentation**
  The list is one of the main three zones of the Image Browser (see section **Image Browser**).

  As we saw in previews pages, the list is the central place to organize and manage information in your database.



Presentation icons

The icon at the far left of each item of the list, reminds you what the current presentation for the list is, patients, studies or series.

Scrollbars

Depending on the number of items in your list, a vertical scrollbar can appear on the right of the list, to let you scroll the entire list of items.

An horizontal scrollbar can also exist, to let you scroll the list horizontally and see all columns.

Sorting the list

Items of the list can be sorted at any time according to the content of any column (name, date…).

To sort the list (ascending) according to the content of a column, simply click the column header. To invert the sort (descending), click again on the same column header.

Note: Current list sorting is saved for each list presentation (patients, studies or series), and for each user.

Selecting elements of the list

Single click

Clicking a list item (a line in the list) will select it, that is, its color will change to the selection color.

When an item is selected in the list, additional information is automatically shown in the hierarchy tree below (see paragraph **The hierarchical tree**). If a study from a separate patient is in display, that study will be closed unless **SE Client** is configured to show studies from separate patients at the same time.

Double click

Double-clicking a patient does nothing.

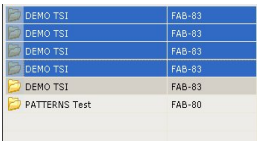
Double-clicking a study opens it (opens all the series of the studies).

Double-clicking a series opens it (displays images in the series).

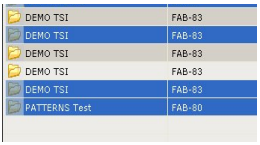
Multiple selection

You can select several items in a list (a group of lines) to apply a function or tool to all this items in one time.

<Shift> To select a group of continuous lines, click the first line of the group, hold down the <Shift> key, click the last line of the group, then release the mouse and the key.



<Ctrl> To select **separated** lines, hold down the <Ctrl> key, click each line you want to select, then release the mouse and the key.



Note: Remember this selection technique; it can be used in a lot of places in application, like for example on images displayed.

Adjusting and customizing the list columns

The columns of the list are fully adjustable (width, position…) and customizable.

Columns width

The width of each column can be adjusted individually.

To adjust a column width, put the mouse pointer on the columns separator (the pointer will change to a vertical bar with left and right arrows), click and hold the mouse button, move the mouse left or right to the desired position, then release the mouse button.

Note: A double-click on a separator, automatically adjusts column width to the widest text in the column, optimizing the width.

Note: Columns width is saved for each list presentation (patients, studies or series), and for each user.

Columns position

The position of each column can be changed to place the columns in the order you prefer.

To change the position of a column, click its header, hold the mouse button down, drag the column left or right by moving the mouse in the corresponding direction, then release the mouse button to drop the column at the desired position.

Note that while you drag the column, you see a transparent image of its header, and the actual possible drop target as a vertical blue line.

Note: Columns position is saved for each list presentation (patients, studies or series), and for each user.

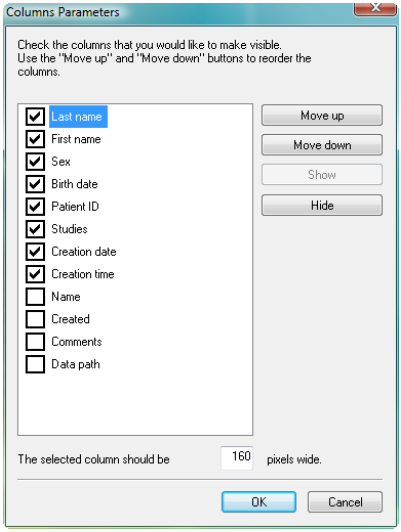
Customizing which columns to display

You can fully customize which columns of the list you want to see or not.

To customize the columns to display, in every list presentation (patients, studies or series), simply right-click any column header and choose item “Select Columns to Display”.

In this dialog, **check** the columns you want to see in the list and **uncheck** the ones you don’t want.

Use the “Move up” and “Move down” buttons to adjust the position of each column.



WARNING: Newly added columns will always be placed on the far right of the list. By sorting and customize columns, user could miss relevant information.

Instruction: You may need to use the horizontal scrollbar to see them.

Instruction: You still have the possibility to move them manually afterwards, show or hide them.

Note:

Columns customization is saved for each list presentation (patients, studies or series), and for each user.

Data path column cannot be filled in for DICOMDIR data.

■ Display study status

SE Client may be configured to display a study status within a column of the list view. This feature allows you to mark a study as one of the following statuses:

- New
- Started
- Multi-study new
- Dictation Started
- Trainee dictation started
- Dictated
- Trainee dictated
- Reported
- Approved

By default, all studies that enter the system will be given a status of **New**. You are then able to modify the status based on your progress with the study. Right-click on a status you would like to change and application will present a context menu that will allow you to select a new status. The status is study specific; therefore all **SE Client** users will see the status you set.

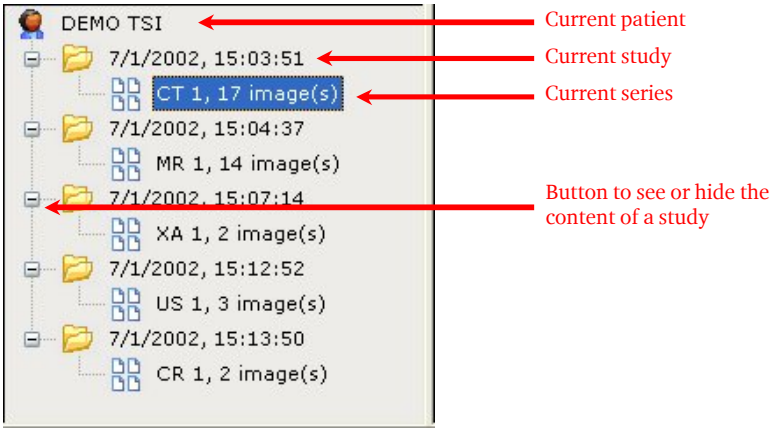
WARNING: Study status should not be used to drive workflow. It is not driven by a RIS, and not automated in any way. It is provided to allow you to share additional status information with other users of the system.

Note: The system may be configured to add additional study statuses. Contact your administrator for details.

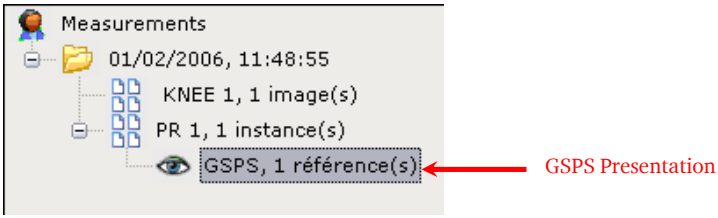
The hierarchical tree

Presentation

Located at the bottom left, the hierarchical tree is one of the main three zones of the Image Browser (see paragraph **Image Browser**).



This tree represents the DICOM hierarchy of selected item in the list.



This tree represents the availability of a standard DICOM grayscale softcopy presentation state object.

As explained in paragraph **Image Browser**, **SE Client** database is organized in four hierarchical levels, patients, studies, series and images. This tree shows you graphically (with a different icon for each kind of element) the position of selected item of the list in this hierarchy.

The hierarchical tree is automatically updated when you select another item in the list. If no item is selected in the list, the hierarchical tree area is empty.

On the left of studies lines, a little square button with a minus sign allows you to show or hide the content of a study (the series). When displayed for the first time, the tree presents the content of all studies. When the content of a study is hidden, the little button turns to a plus sign. A user preference will allow you to determine whether the hierarchical tree is expanded or collapsed when in patient or study view.

Depending on the number and size of elements in the tree, horizontal and vertical scrollbars can appear on the sides of the tree.

How to use the tree

1. Select an item in the list above this tree, you will then see the hierarchy of selected item in the tree.
2. Select a study or series in the tree, you will then see its images thumbnails in the thumbnails area (see paragraph **Images thumbnails**).

Each line of the tree gives you quick information about the element it represents:

- Patient icon, then patient's last and first name.

- Study icon, then study date and time.

- Series icon, then series modality, series number and quantity of images in series.

- GSPS icon; then number of images referenced by the presentation state object.

- Report icon, then the report title.

Note: In the tree, presentation order for studies inside the patient, and series inside a study, is always by date and time (the oldest at the top, the latest at the bottom).

- **Clicking elements of the tree**

Single click

Clicking a line of the tree will select it, that is, its color will change to the selection color.

If selected element is a patient, nothing happens.

If selected element is a study, a thumbnail of the first image of each series of the study, is shown in the images thumbnails area; except if **Full Mode** option is enabled for database window (See section **Thumbnail View Full Mode** for details).

If selected element is a series, thumbnails of all images inside the series are shown in the images thumbnails area.

If selected element is a GSPS, thumbnails of all images referenced by the presentation state object are shown in the images thumbnails area.

If selected element is a Report, a preview of the DICOM Structured Report (content of the report with basic presentation) is shown in the image thumbnails area.

Double click

Double-clicking a patient does nothing.

Double-clicking a study opens it (opens all the series of the studies).

Double-clicking a series opens it (displays images in the series).

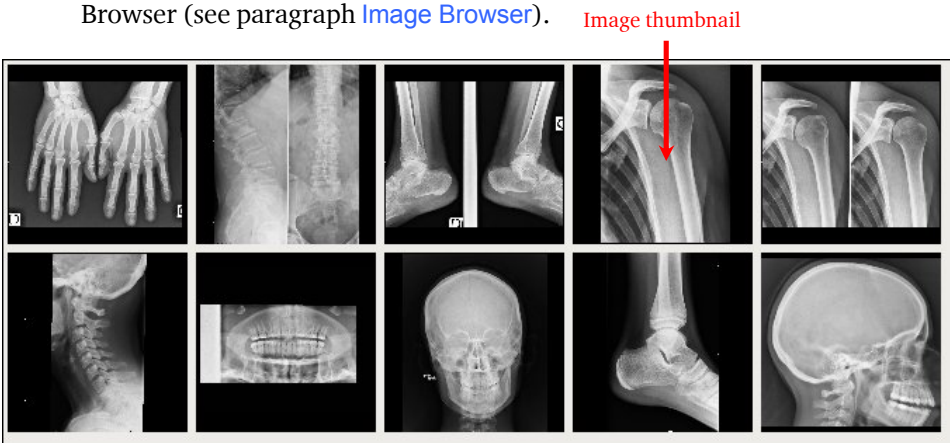
Double-clicking a GSPS opens images with presentation state applied.

Double-clicking a Report opens the report with cascading file sheet applied.

Images thumbnails

Presentation

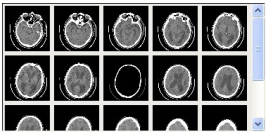
The images thumbnails area is one of the three main zones of the Image Browser (see paragraph Image Browser).



This zone presents images thumbnails (small views of images) of the selected element in the hierarchical tree on the left (see paragraph hierarchical tree).

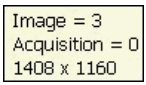
- If selected element in the tree is a **patient**, the thumbnails area is empty.
- If selected element in the tree is a **study**, a thumbnail of the first image of each series of the **study**, is displayed.
- If selected element is a **series**, thumbnails of all images of the series are displayed.
- If selected element is a **GSPS**, thumbnails of all referenced images are displayed.

In this area, thumbnails are always displayed from left to right and from top to bottom.



Dimensions of thumbnails are variable, depending on the number of thumbnails to display. Nevertheless, for clarity reasons, there are a minimum and a maximum size for the thumbnails, so if there is not enough space to display all thumbnails at one time, a vertical scrollbar will appear at the right of the zone.

Tool tips



You can get more information about an image by putting the mouse pointer over the thumbnail of this image and wait one second.
An information "tooltip" will be displayed next to the pointer, giving image number, acquisition number for image and image dimensions.

Marking images

SE Client gives you the possibility to mark images, to flag them as significant or key images.

The concept of marking is different from selecting:

- **Selection** is a temporary way to tell on which images you want to apply a treatment or a function, but no selection information is kept in the database, it is volatile.
- **Marking** is a permanent way to "tattoo" images as important for you. This mark is kept in the database, so you can still see if images are marked when you re-open them later on. When exported in DICOM, this mark is sent as standard DICOM Key Object.

<Enter>

To mark an image, you can do it on screen when it is displayed, or you can mark its thumbnail.
To mark or unmark a thumbnail, select it (a green frame appears around it), then press **Enter** key on the keyboard.

When an image is marked, a **red square** is displayed in the top left corner of its thumbnail.

- **Clicking thumbnails**

Single click
Clicking a thumbnail will select it, that is, will draw a green frame around it.

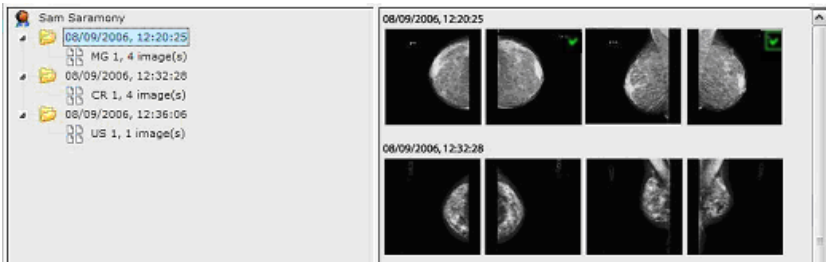
Double click
Double-clicking a thumbnail opens the corresponding image (displays the image).
Note that if the thumbnail represents a whole series (only the thumbnail of the first image of series is displayed, because a study is selected in the tree, see section **hierarchical tree**), a double-click on it will open the whole series.

Multiple selections
You can select several thumbnails (a group of thumbnails) to apply a function to all of them in one time (like opening them).

<Shift> To select a group of **continuous** thumbnails, click the first thumbnail of the group, hold down the <Shift> key, click the last thumbnail of the group, then release the mouse and the key.

<Ctrl> To select separated thumbnails, hold down the <Ctrl> key, click each thumbnail you want to select, and then release the mouse and the key.

Display markups



Top right markups on thumbnails indicates users the status of images: viewed or reviewed (with markup) or not viewed (without markup):

This icon indicates that an image has been seen at least once.

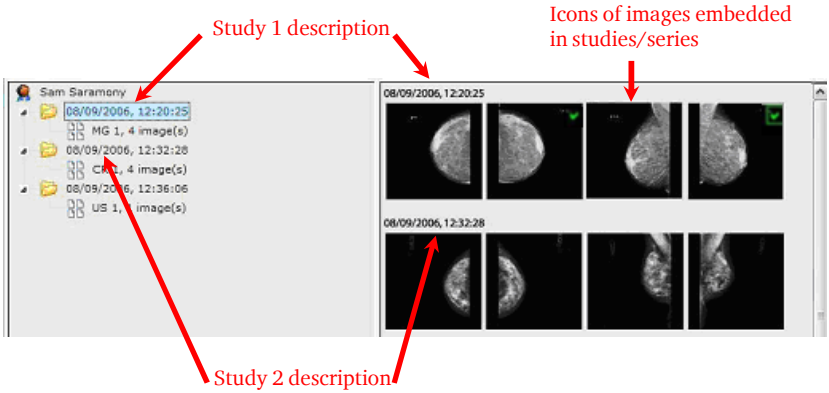
This icon indicates that an image is currently displayed.

Note: These marks are deleted as soon as images are closed and database window refreshed.

Thumbnail view Full Mode

*Note: By default, **SE Client** displays (in thumbnail view) icons of the selected series only or first image of the series belonging to the selected study. Application administrator can enable the thumbnail view **Full mode** option.*

In **Full mode**, application will display icons of all studies (therefore all series embedded in studies) of the patient which selected study belongs to. The icons will be sorted by study in the thumbnail view.



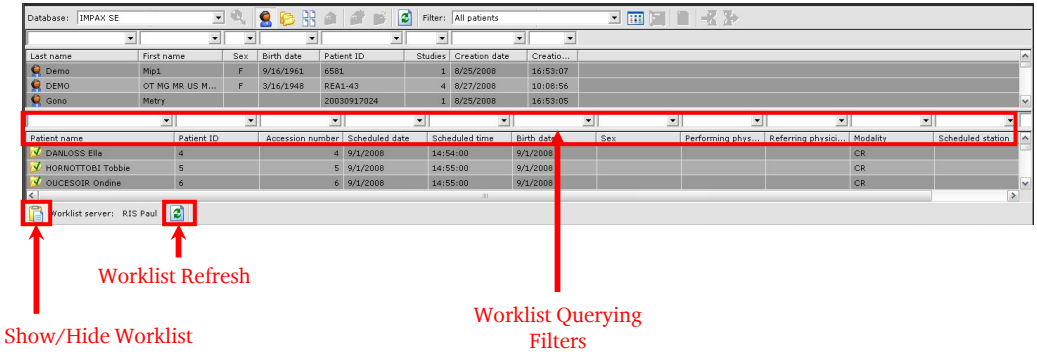
*Note: the thumbnail view **Full mode** option is relevant for clinical applications involving series containing few images. Otherwise, user must be aware that icons loading time will be long and thumbnail view cluttered with thumbnail images.*

The Worklist and QA functionalities

Presentation

SE Client is able to query / retrieve information from a RIS system and get an up to date worklist in the **Worlist Area** of the **Image Browser** window. This functionality allows user to perform Quality Assurance tasks as well, such as patient demographic data update/merge.

Instruction: The Worklist and QA functionalities are available from the user interface if your administrator correctly set up a HIS/RIS connection in the application settings only. You administrator can enable the automatic reconciliation mode and default rules as well.



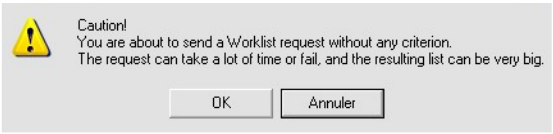
Click the **Show/Hide Worklist** button to display the worklist

Worklist display

Once the Worklist/QA mode is correctly set up, user can reach his worklist by clicking the **Show/Hide Worklist** button.

By entering a value in the **Worklist Querying Filters** and clicking the **Worklist Refresh** button, user will refine the content of his worklist.

Note: When sending a Worklist request without any criterion, the following warning appears:


Caution!
You are about to send a Worklist request without any criterion.
The request can take a lot of time or fail, and the resulting list can be very big.
OK
Annuler

Indeed, in some cases, the worklist database can be big and queries could take lot of time.

Instruction: This warning can be disabled by your administrator in application settings. However, you have to keep in mind that such a not restricted query can significantly decrease application performances.

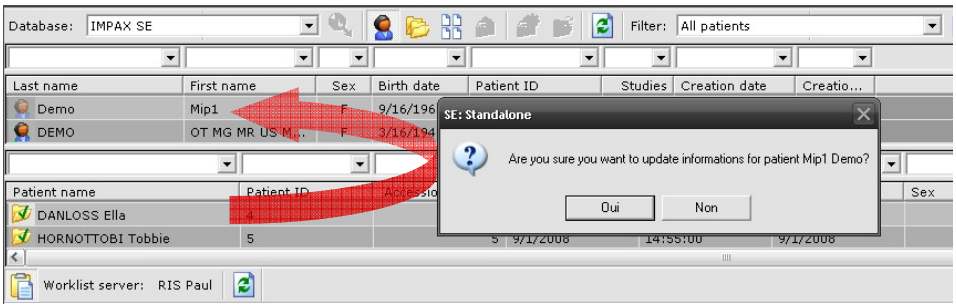
*Note: It is possible to set up an automatic refresh of the worklist every X minutes via **DICOM Worklist** item of the **Options** menu for an **Administrator** profile.*

- **Worklist and Quality Assurance modes**

Automatic mode

Gets the latest information from a DICOM Modality Worklist, and based on a common key (usually the accession number), tries to match the information from the HIS/RIS with the study and reconciles patient data if errors are found.

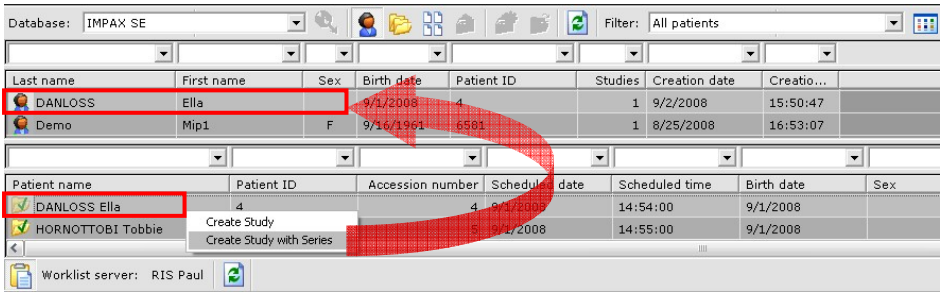
Manual mode



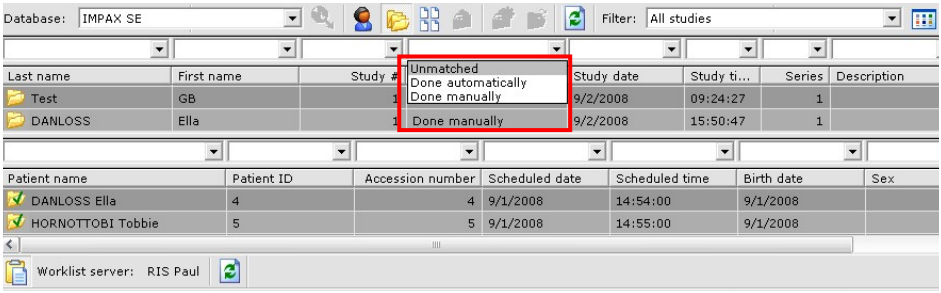
By simple drag and drop from the **Worklist Area** to the **Patient Browser** window, the identity of the patient is automatically updated, according to the rules defined for the automatic mode.

Default Rules

When an item in the worklist is a new patient (not existing in the current database), you can easily create this new patient by clicking **Create Study** or **Create Study with Series** in the contextual menu of a worklist item (right click on item).



As soon as the reconciliation is performed, the **Worklist Match Status** column of the list area is updated: set to **Done Manually** if the reconciliation is a drag and drop, or **Done Automatically** if the reconciliation has been performed by the application itself (in Automatic Mode).



Automatic mode default rules (configurable by administrator profile only)

Worklist Tag	Description	DICOM Tag	Description	Level	Key for auto mode	Replace	Fill if empty	Leave as is
0010,0010	Patient name	0010,0010	Patient name	Patient		✓		
0010,0020	Patient ID	0010,0020	Patient ID	Patient		✓		
0008,0050	Accession number	0008,0050	Accession number	Study	✓		✓	
0010,0030	Birth date	0010,0030	Birth date	Patient			✓	
0010,0040	Sex	0010,0040	Sex	Patient			✓	
0040,0006	Performing physician	0008,1050	Performing physician	Series			✓	
0008,0090	Referring physician	0008,0090	Referring physician	Study		✓		
0008,0060	Modality	0008,0060	Modality	Series			✓	
0020,000D	Study instance UID	0020,000D	Study instance UID	Study		✓		
0032,1060	Requested procedure description	0008,1030	Requested procedure description	Study			✓	

The green check(s) defines, for each database field (DICOM tag), the application's behavior when updating database.

The red check(s) defines the key(s) to use for automatic reconciliation.

- **Level:** Specifies the level of modification (Patient/Study/Series).
- **Key for auto mode:** Indicates the key(s) to use for automatic reconciliation.
- **Replace:** Indicates that existing value will be replaced by the new one.
- **Fill if empty:** Indicates that field will be filled in if empty only. Therefore existing value will NOT be replaced by the new one.
- **Leave as is:** Whatever the content of the existing field (filled in or not) the value will NOT be modified.

Contextual menus in Image Browser

- **Presentation**

  Contextual menus are very popular in Microsoft Windows applications, because they are very convenient. You can get a contextual menu by clicking the right button of the mouse on a particular item of the interface.

  The advantage of contextual menus is that their content depends, first on the item that was right-clicked, secondly on the context of the application at that time. This way, a contextual menu is always a nice shortcut to offer you quick, specific and useful actions.

  Note: In application browser window, a lot of functionalities are accessible (and sometimes only) through contextual menus, so it is necessary that you get familiar with them.

  In all **SE Client** graphic user interfaces, on every window, list, view or image, when looking for a particular tool or function to apply to an item, you should always have the reflex to right-click on it!

  Playing with contextual menus, is also a good way to discover some functions or possibilities of application that you may not yet know.

- **Contextual menu on columns headers**

  In each presentation type of the list (patients, studies or series), you have a contextual menu on list columns header. All the options of this menu apply only to current list presentation type.

Default Sort
If you check this option, **SE Client** will use this column as the default sort for the list, so this column will be used as the second sort after current sort of the list (clicking the column header).

Examples:

- If you check "Default Sort" for column "Patient name", then click header of column "Study date", SE Client will first sort the list by study dates, then if some studies have the same date, they will be sorted by patient name.
*- If you check "Default Sort" for column "Study date", then click header of column "Study description", **SE Client** will first sort the list by study description, then if some studies have the same description, they will be sorted by date.*

Checking this option for a column will automatically uncheck all other columns for this option (only one column can be "Default Sort" at a time).

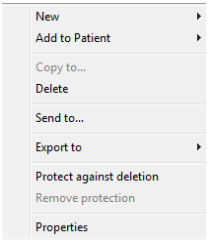
Select Columns to Display…
This item allows you to customize the columns of the list, choosing which to show and which to hide.

Reset Columns
This option resets the columns configuration to default, canceling any customization that may have been done.

Mask this Column
Choosing this item masks the column from the list. This is a quicker way to remove a column than to use "Select Columns to Display".

Contextual menu for a patient item

Note: The contextual menu on a patient in the list is the same as the one on a patient in the hierarchical tree.

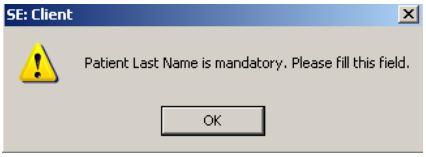


New

Patient
Patient, Study
Patient, Study, Series

This submenu is intended to create new patients in **SE Client** database. You can create a new empty patient, a new patient with an empty study, or a new patient with a study containing an empty series.

Note: When a patient is created or updated, if the last name field cannot be left blank otherwise a warning message appears until it is filled in.



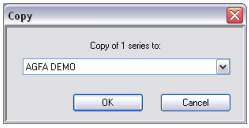
Add to Patient

Study
Study, Series

This submenu is intended to add elements to an existing patient.
You can add a new empty study, or a new study with an empty series.

Copy to…

This option is intended to copy selected elements to another **SE Client** database.



This option may be grayed out if you have only one database. When you have several databases, the application will ask you which database you want to copy to.

Caution: Use this option to copy elements from a DICOM CD-DVD to **SE Client** database. See section **Reading/Burning a DICOM CD** to learn how to read a DICOM CD-DVD.

Delete
Administrators may use this option to permanently delete an object or group of objects from the database.
To avoid accidental deletions, **SE Client** will prompt you for confirmation. By default, this option is only available to administrative users.

Send to…
Use this option to send selected elements to another medical workstation over a local network or to a remote site.
All related data of elements (studies, series, images…) will be sent.

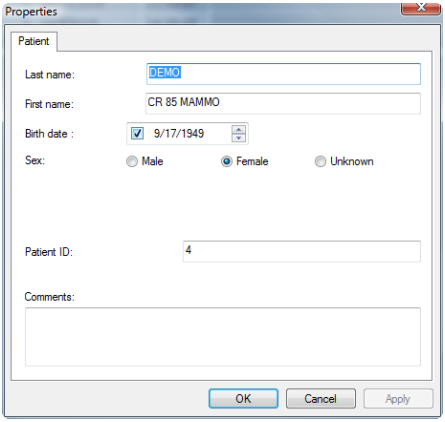
Export to
This submenu is to export selected elements as they are presented on screen to CD-DVD media.

DicomDir Media

"DicomDir Media" is to burn a simple DICOM CD of selected elements. The CD you create will be fully compliant with the IHE PDI profile
You must have a CD recorder on your computer in order to use this function.

Properties
This option displays the properties of the selected element, which is the field stored in the database for this element.

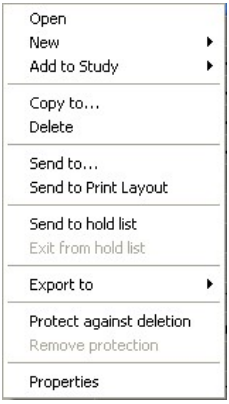
It is possible to modify fields (patient name, comments…), and save them in the database by clicking *"Apply"* or *"OK"*. Please contact your administrator to ensure your workstation is configured correctly to enable this functionality.



Note: When creating a new patient the birth date value is 'Today' date. However it is possible to modify an existing birth date by selecting the field to be modified (day or month or year) and using the arrow buttons in the Properties window.

■ Contextual menu for a study item

Note: The contextual menu on a study in the list is the same as the one on a study in the hierarchical tree.

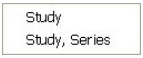


Open

Use this option to open selected elements, that is, display on screen all images they contain.

The way images are displayed on screen depends on your display configuration (see chapter **Set the presentation of images**).

New



This submenu is intended to create new studies in **SE Client** database.
For the same patient as the selected study, you can create a new empty study or a new study with an empty series if your profile is configured to do so.

Add to Study

This submenu is intended to add elements to an existing study for users with privileges to do so.
For selected study, you can add a new empty series, or a text report that will be attached to the study.

Protect Against Deletion

Use this option to lock selected elements to prevent them to be deleted by automatic database cleanup.
When an element is locked, its line in the list turns **red** and a lock appears in the *"Protected"* column (you can also directly click the line of the element in this column to protect it).
When you protect a study, all series it contains are protected as well.
This option is only necessary when Automatic Deletion is enabled.

Remove Protection

Use this option to remove protection against automatic database cleanup on selected elements.
When protection is removed for an element, the line turns back to black and the lock disappears from the *"Protected"* column.

Send to Print Layout <Ctrl + L>

This function is available at study level only and allows user to send the whole study content to the Print Layout.
Default layout is the layout defined during previous printing.

Note: Mammography studies images must be printed in 'True size', with one image per page and ' For Presentation' images only.

Note: Sending big studies to the Print Layout may require some time.

Copy to…
Delete
Send to…
Export to…
Properties

These options are similar to the ones in patient contextual menu, except that they apply to studies.

Contextual menu for a series item

Note: The contextual menu on a series in the list is the same as the one on a series in the hierarchical tree.

New Series
This item creates a new empty series in the study of selected series.

Add Report
This option allows creating a text report and attaching it to selected series.

Import

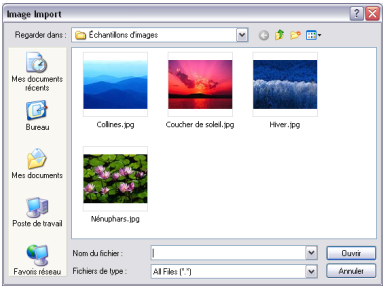
This submenu is intended to import elements in selected series. “Images” option adds image files to the series. Supported file formats for image importation are TIFF, JPEG and DICOM. Imported images are converted to DICOM and stored in this format in database.

WARNING: Incorrect manipulation can occur during import of elements or any modification within databases (merge/split of patients/studies/series), more precisely at patient/studies/series/image association step. An image could belong to a wrong patient.

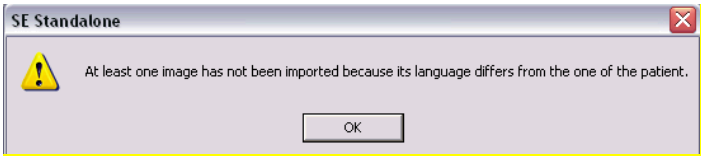
Instruction: When a patient/studies/series/image association is done during an import or any modification within databases (merge/split), user has to pay attention and be sure that he associates images with the

corresponding patient. This kind of feature is therefore available only for administrator by default.

Use standard file browser to select image files or attachments you want to import in series.

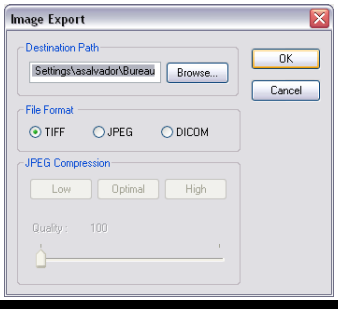


Import of DICOM images
Import of images is possible only if the character set of the patient data is the same as the one of the image to import. Otherwise this message will be displayed:



Export to…

This submenu is intended to export the content of selected element. “Image” option allows extracting all image files from a series and converting them to a multimedia format like TIFF or JPEG and using them in other software.
Select destination path for exported images and adjust export parameters.



1. Select export file format (“Original” is DICOM),
2. If JPEG, select compression ratio,
3. If you check “Zoom”, exported image will keep its current display zoom.

CD export options are similar to the ones in patient contextual menu, except that they apply to series.

Archive

This option is to archive series on media (e.g. CD) and keep a reference in the database thanks to a volume name and a serial number.

Archive CD is compliant with the DICOM standard (DICOM part. 10) as well as the Universal Disk Format (UDF) file system for use on re-writable CD media.

Note: This archiving function allows the storage of series on CD to avoid saturating your database. Archive CD must be kept on a shelf close to the application, to be inserted manually when the application asks for them.

- **How to archive a series**

Prepare your media

The media where data will be stored must include a *Volume name* and a *Serial number* (assigned by Micorsoft Windows during formatting).

Instructions: To assign a Volume name, you usually have to do a right click on the drive letter containing the media via the file explorer then type an unique name for the whole of the media used for archiving. It may be possible that this functionality is not available by default on your system. Therefore, you need to ask your administrator to install a third application that will allow edition of Volume Name.

It is also recommended to stick on the media a label mentioning the volume name.

Archive your series

Right click on series you want to archive and select *Archive*.

When a series is archived, a CD icon is displayed in the “Archived” column of the list.

When an archived series is deleted, a rubbish bin icon is displayed in the “Deleted” column of the list.

WARNING: User must check media before deleting data in database in order to lower the risk of data loss.

Note: Once archived, a series can then be deleted from the database. In fact, SE Client will only delete images of the series, but not the series line in the list, and will keep a reference to the CD on which images are. If you try to open an archived and deleted series, SE Client will prompt you to insert the CD, giving you the label of CD it needs.

- **How to display an archived series**

When an archived series is open, either the media corresponding is present (inserted in the reader) and the images open normally, or the media is not present and the software opens a window to require the insertion of the media in which the series of images was recorded.

In this window, the name of volume and a serial number appears. Insert the media corresponding to the label requested, then validate to display images.

Note: It is not possible to 'un-archive' a series.

WARNING: Be careful not to confuse archiving function with export to CD described in section Reading/Burning a DICOM CD.

Instruction:
Export to CD (with or without viewer) is something you do for on-demand use, like for example to give a patient a CD with his exams. With this function, no track of the CD burning is kept in application database.
Archiving to CD is something you do regularly to empty your database and migrate studies on an external media. Burned CD contains series from various patients, and must be kept on a shelf to be inserted when requested, because a reference to each CD is kept in application database.

Protect Against Deletion
Use this option to lock selected elements to prevent them to be deleted by automatic database cleanup.

When an element is locked, its line in the list turns red and a lock appears in the “Protected” column (you can also directly click the line of the element in this column to protect it).

When you protect a study, all series it contains are protected as well.

This option is only necessary when Automatic Deletion is enabled.

Remove Protection
These options are similar to the ones in study contextual menu, except that they apply to series.

Open
Copy to…
Delete
Send to…
Properties
These options are similar to the ones in patient contextual menu, except that they apply to series.

Contextual menu for an image thumbnail

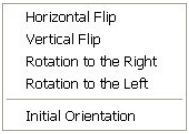
Open
Send to…
Delete
Properties
These options are similar to the ones in patient contextual menu, except that they apply to images.

Export
This submenu is intended to export selected or marked images.
This option is similar to the one in series contextual menu, except that they apply to images.

Select Images

This submenu allows to quickly select some thumbnails. This is particularly useful for series having a lot of images, like CT or MR. You can select 1 thumbnail on N, select all thumbnails, or select marked thumbnails only.

Orientation



This submenu allows rotating and flipping images.
You can flip images from left to right, top to bottom, or rotate them by 90° clockwise or anticlockwise. After changing orientation, you can go back to the original orientation.

WARNING: Laterality is extremely important, as are transformations in laterality. If you display an image that has been flipped or rotated, the following icon is displayed on the image:

HL7 Integration

Patient demographic data update/merge from HL7 messages

SE Suite provides benefit to a site through the ability to receive HL7 messages from the Practice Management System (PMS) / Electronic Medical Record (EMR), provide updates to patient data for existing patients and/or provide the ability to merge patient data for existing patients with these values:

- Patient Name
- Patient date of birth
- Patient ID (key value)
- Patient Gender

This ensures that updates to patient information on the PMS/EMR are also made on **SE Suite**.

If there are several patients with the same Patient ID, application informs by e-mail that the message can not be performed because of key's conflict (several patients with the same key).

In that case, there are two solutions :

- The several patients are the same patient : a manual merge can be done (see paragraph **Worklist and Quality Assurance modes**).
- The several patients are not the same patient : application won't do anything.

Note : The e-mail address is configurable by application administrator.

The update/merge is done at a minimum of 2 hours after last image reception of the patient.

If the patient does not exist yet, the update/merge HL7 message will be kept.

In all cases, update and merge messages will be kept 30 days.

Each message is performed one unique time.

DICOM modality worklist from HL7 messages

SE Suite will provide benefit to a site through the ability to receive HL7 messages from Practice Management System (PMS) / Electronic Medical Record (EMR) and provide a DICOM modality worklist (MWL) to an associated modality for all imaging exams each day depending on these values:

- Patient Name
- Patient date of birth
- Patient ID
- Patient Gender
- Visit Number

DICOM MWL Information:

At a minimum, a DICOM Modality Work List will have to provide the following information to a modality:

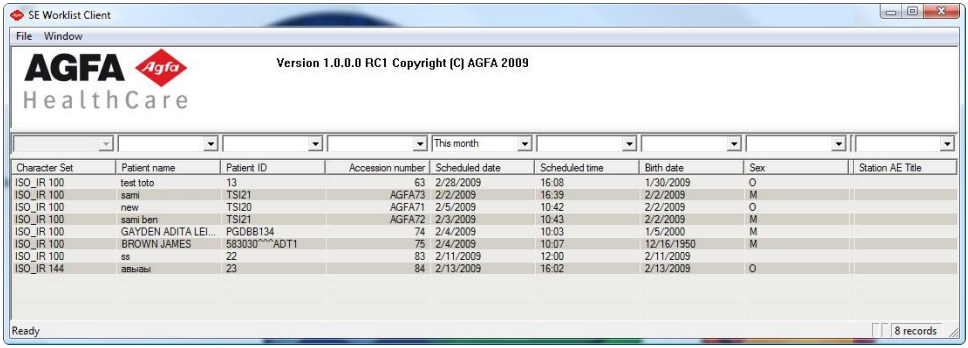
- Patient Name
- Patient Date of Birth
- Patient ID
- Patient sex
- Accession Number = automatically generated
- Study UID= automatically generated
- Study Date and Time = automatically generated
- Modality = set to a default one (configurable).
- Study Description = empty.
- Admission ID = Visit Number
- Visit Status ID = ADMITTED

Note: The worklist can be cleaned daily, twice weekly, weekly, twice monthly or monthly. By default, cleaning is set to Monthly. However, it can be configured by an administrator.

SE Worklist Client

The SE Worklist Client is a software program which can be installed on any networked PC which can connect to a PC running SE Server or SE Standalone, and serves as a user-friendly tool which allows adding or editing patient admission information to provide a DICOM modality worklist to image modalities.

The SE Worklist Client can only function when connected to a PC running SE Server or SE Standalone, with a valid (optional) “Worklist license”.


SE Worklist Client
File Window
AGFA HealthCare
Version 1.0.0.0 RC1 Copyright (C) AGFA 2009
This month
Character Set | Patient name | Patient ID | Accession number | Scheduled date | Scheduled time | Birth date | Sex | Station AE Title
ISO_IR 100 | test toto | 13 | 63 | 2/28/2009 | 16:08 | 1/30/2009 | O
ISO_IR 100 | sami | TSI21 | AGFA73 | 2/2/2009 | 16:39 | 2/2/2009 | M
ISO_IR 100 | new | TSI20 | AGFA71 | 2/5/2009 | 10:42 | 2/2/2009 | O
ISO_IR 100 | sami ben | TSI21 | AGFA72 | 2/3/2009 | 10:43 | 2/2/2009 | M
ISO_IR 100 | GAYDEN ADITA LEI... | PGDBB134 | 74 | 2/4/2009 | 10:03 | 1/5/2000 | M
ISO_IR 100 | BROWN JAMES | 583030^^^^ADT1 | 75 | 2/4/2009 | 10:07 | 12/16/1950 | M
ISO_IR 100 | ss | 22 | 83 | 2/11/2009 | 12:00 | 2/11/2009
ISO_IR 144 | аывы | 23 | 84 | 2/13/2009 | 16:02 | 2/13/2009 | O
Ready
8 records

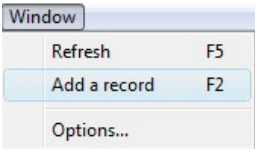
- **How to enter new data**

There are several ways to enter new data in SE Worklist Client. User can either:

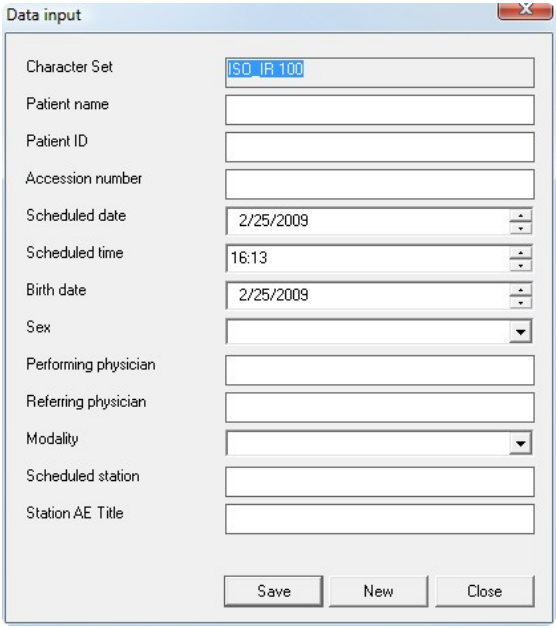
- Double click on an empty row in the worklist

  or,
- Press the <F2> key

  or,
- Click on “Add a record” in the Window menu



The following window will pop up:



1. You can enter values in each field, except when they are greyed out

Note: The charater string length of each editable field is limited by the DICOM standard (e.g. Accession Number is limited to 16 characters). See Appendix C - DICOM Character String Maximum Length Table for details.

Note: Both patient 'name' and 'first name' must be typed in the 'Patient name' field with 'name' in first position (e.g. Dubois John). It is also possible to enter complex names thanks to the '^' character(e.g. Van Der Sar ^ John). However, 'Middle name' is not supported.

2. "Scheduled Date", "Scheduled Time" and "Birth Date" are set by default but can be modified.
3. Once you finished to add information click "Save" to register the new item.
4. If you don't have any new patient to create click "Close" to quit the Data input window. If you need to add a list of new entries you can hit "New" button instead of "Close" until the ned of the list. However, you need to click "Save" for each entry, otherwise the last patient will be saved only.

5. Hit “Close” button when you finished to enter the complete list of new entries.

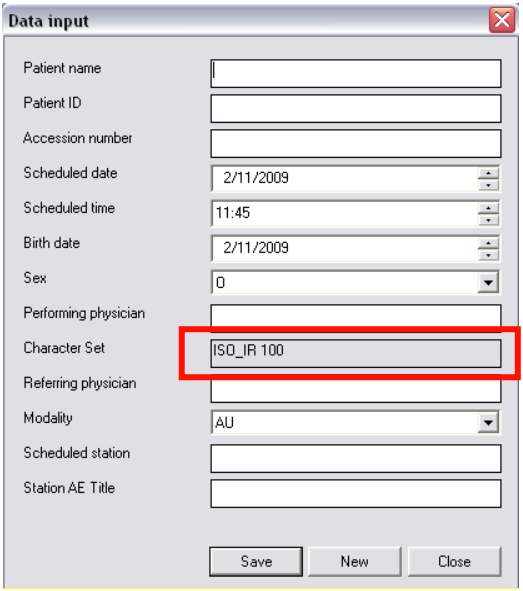
Note: If you click “Close” before “Save”, data won’t be saved in any case

Note: When editing/adding a DICOM Modality Worklist record, following fields always need to be filled in: patient name, study date, study time and modality information.

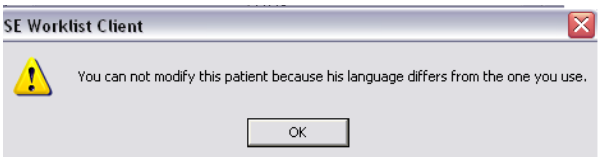
Note: In case the “Accession number” of an existing record is changed, a new patient record will be created.

Note: The content of the Data input window (fields to be edited), depends on the “Columns parameters” setting in the SE Client Worklist application . In other words, any field which is not checked in the “Columns parameter” settings or visible as a columnin the application may not be edited.
Therefore, it is important to correctly setup the columns to be displayed as early as possible and according to the information you need to provide to modalities or people involved in workflow.

Note: For each new record, the “Character Set” field is automatically filled in by the application, and matches the local input locale (keyboard language setting of the OS).



Note: User can not modify existing patient information if the Character Set of the patient data is not the same as the Character Set of the keyboard used. If Character Sets are different the following pop up message is displayed to prevent patient data modification.



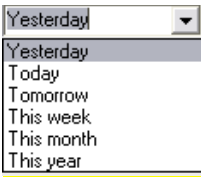
- **How to modify existing data**

User can modify existing records by double clicking on an item in the worklist itself and directly modify information in the Data input window.

- **SE Worklist Client additional tools**

- **Filtering**
  - Filters can be applied to all columns. Filtering rules and criteria are the same as SE Client browser window. See Section **List filtering**

SE Worklist Client provides predefined filters for 'Scheduled Date' column:



Note: The filter "This week" displays all records created as from the last "first day of the week".

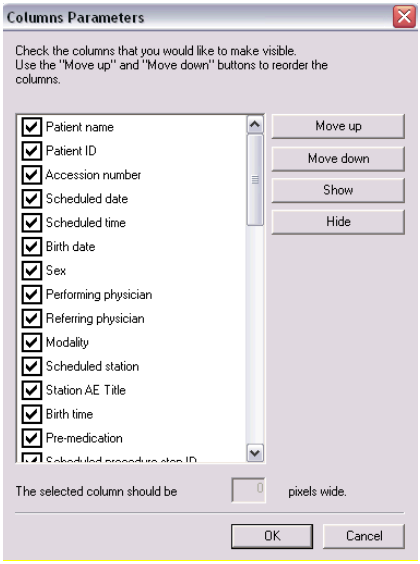
- **Sorting**

Items of the list can be sorted at any time according to the content of any column (name, date…).

To sort the list (ascending) according to the content of a column, simply click the column header. To invert the sort (descending), click again on the same column header.

- **Columns display**

User can customize the columns to be displayed in SE Worklist Client by right clicking on column header. Then, the following Column Parameters window will pop up:



Columns can be hidden, unhidden and reordered by using the buttons "Show"/"Hide" and "Move up"/"Move down".

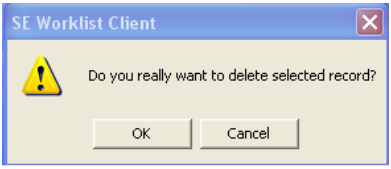
Note: Maximum possible displayed columns is 15.

- **Deleting**

To delete items in the worklist, user must select them and click on the <DEL> key on the keyboard OR click on Delete item in the File menu.

Note: It is possible to perform a multi selection with <CTRL> or <SHIFT> keys pressed down while selecting items.

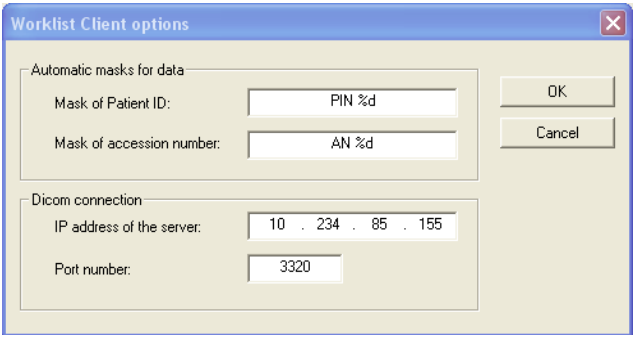
Confirmation window always pop up to confirm deletion



- **Refreshing**

The SE Worklist Client is based on a Client/Server mechanism, and can support multiple SE Worklist Client inputs. In this case, records could be added/modified without being noticed on a certain Worklist Client. Therefore, it is recommended to refresh the worklist view in order to view the latest status. (Refresh by pressing <F5>).

- **Options**



- Automatic masks for data

It is possible to customize the *Patient ID* and the *Accession Number* thanks to masks. Indeed, you can add a text string before the UID (e.g. PIN or AN in previous screen capture).

Note : Do not remove %d, it indicates the position of UID compared to the mask text string.

If you want SE Worklist Client to apply the mask(s) you defined and automatically generate IDs', you just need not to fill in these fields while creating new entry.

Note : It is not needed to restart SE Worklist Client to apply new mask configuration.

- DICOM connection

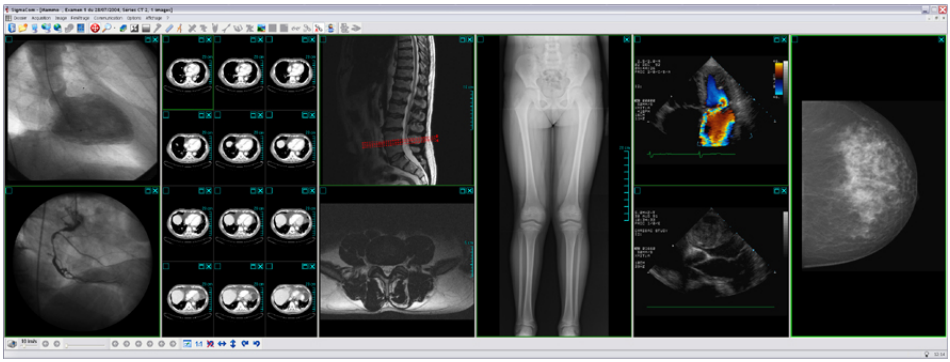
This section is intended to identify the Worklist Server thanks to its IP address and Port number.

Note: Port number must be 3320

Image Display Area

- Presentation
- Opening images for display
- Image area display tools
- Image display functions
- 3D Functions
- Orthopaedic tools
- Contextual menus on images

Presentation



As a DICOM workstation, **SE Client** is able to display DICOM images, coming from many modalities. Images can be static or dynamic (sequences), monochrome or color. **SE Client**'s ease of use and good performances in image loading and display, makes it very intuitive and efficient to work with.

SE Client display behavior is defined in "Display Format" control panel. Default display behavior should fit the majority of needs, so it should not be necessary for you to change it. Nevertheless, if you need to change the display behavior, see paragraph **Set the presentation of images**.

WARNING: An icon (⃠) is displayed in the top left corner of an image if SE Client detects that the image is lossy compressed. Lossy compressed images are much smaller and enable fast downloads, but are not recommended for diagnosis due to the nature of the compression.

Opening images for display

All images opening in **SE Client** is done from the Image Browser (or Series Tray when enabled). In this window you can select to open in one time, one or several images, one or several series, or even one or several studies.

Opening an element or group of elements (image thumbnails, series or studies) can be done in three different ways.

Double-click

Double-click the element or group of elements will display them on screen, according to current "Display Format" configuration.

Right-click then "Open"

Right-click the element or group of elements will present a contextual menu. Choosing item "Open" will display selected elements, according to current "Display Format" configuration.

Drag & Drop

You can drag an element from the Image Browser and drop it on a particular place on screen. This will open the element at the chosen destination on screen.

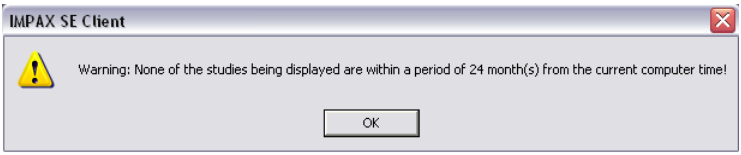
Note: by default, user cannot display series from different patients. It includes images and/or reports (DICOM SR, Microsoft Word …).

WARNING: **An administrator can enable (in Application Settings/Database section) the display of several series from different patient but it becomes his own responsibility (disabled by default). This introduces the risk of comparing two different patient series as a single patient.**

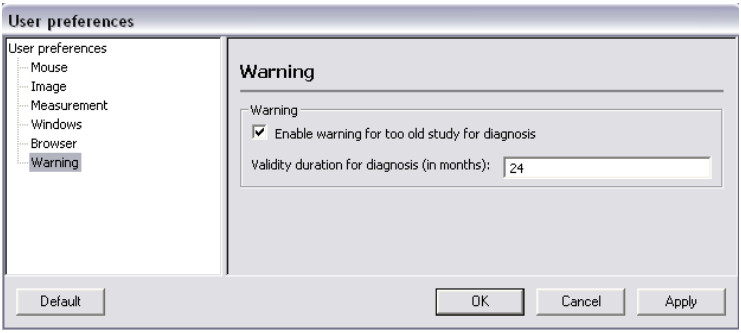
Once some images are displayed, **SE Client** offers several tools and functions to work on images.

Old studies

SE Client is able to warn you if the studies being displayed are too old to be current exams, as determined by acquisition date. This avoids doing diagnosis on prior/old studies.


IMPAX SE Client
Warning: None of the studies being displayed are within a period of 24 month(s) from the current computer time!
OK

It can be configured via **User Preferences** item of **Options** menu.



WARNING: This user option is enabled by default. If the user removes it, he must be aware that he can read studies too old for be current studies.

Image area display tools

A tool is a mode in which **SE Client** is at a given time.

There is always a current tool, but only one tool can be active at a time. Main tools are accessible with a button in toolbars, but some others are accessible through menus and contextual menus on image.

To use a tool, select it then use the left button of the mouse to click on image and apply the tool.

- ## Application tools

	List Use this button to open the Image Browser to search for other studies.
	Series Tray Use this button to display the Series Tray in the Image Area.
	Print Layout Opens the print layout dialog to determine how images will appear when printed.
	Print Opens the print dialog to send images to a paper (with PP option only) or DICOM printer.
	Display Format Use this button to configure how **SE Client** presents images on screen.
	Save Series Save presentation changes to the series, or images within the series, permanently within the original study.
	Save GSPS Save changes in an image presentation to a GSPS object.

- ## Series Tray

  The series tray will allow you to view a small preview of a patient's studies in **SE Client**. It will show a textual interpretation of the studies available, as well as thumbnail representing the series' available within

each study. It may be used to refer to prior exams when viewing a current exam without leaving the image area and selecting the prior in the Image Browser.

Enabling the Series Tray

You may require assistance from an administrator to ensure that the series tray is enabled for your system. To enable the series tray, open the Database dialog via Options > Databases, then select Switch to series tray from the When opening images list.

Displaying images

Displaying images from the series tray is similar to displaying images from the Image Browser. Selecting objects from the small hierarchical view will display them in the image area. You may also select or drag and drop the thumbnails to display an entire series of images in the image area.

- **Imaging tools**

	Panning Use this tool to move image around on screen. This tool is particularly useful when image doesn't fit on screen.
	Magnifier Use this tool to open a smart window named "magnifier". This "magnifier" allows user to localize the position in image during a zoom.

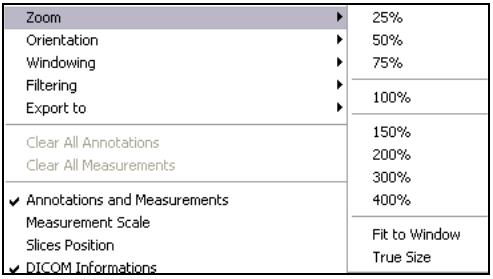
WARNING: The magnifier window could partially hide part of the image and therefore the image could remain not entirely seen.

Instruction: The magnifier window can be resized and moved everywhere on the screen.
The image can be panned or zoomed and the magnified region is clearly delimited by a rectangle in the magnifier window.

The zoom factor is displayed as an overlay on the magnified image. In case of hidden overlay (by clicking on *show/hide display information* button), the zoom factor is also displayed in the title bar of the magnifier window.
The pixel size is also displayed in the title bar of the magnifier window.

*Note: With a two monitor configuration, it is possible to configure **SE Client** to display two paired magnifiers. Your local administrator will be able to assist in configuring this feature.*

Dynamic Zoom
This tool allows zooming image. A little menu associated with this button gives you access to predefined zoom values.



SE Client provides a Pixel zoom: zoom depending on the number of pixels in which the image is encoded.

Pixel Size: 100% means that one pixel on the screen is equivalent to one pixel of acquisition image.

Note: For export or in the magnifier, displayed zoom always corresponds to a Pixel Size zoom.

WARNING: Images may only be considered diagnostic when one pixel of the acquired image is represented by one pixel on screen (1:1 or pixel size is 100%). If the pixel size is lower than 100%, the whole image is not properly displayed and clinical information is missing. If the pixel size is greater than 100%, information (pixel data) is created (interpolation) by the system.

Instruction: You can determine the zoom factors by checking the indication displayed at the bottom right of the image, on the top of the window level indication:

	Image Browsing Use this tool to quickly browse images of a series. This tool is particularly useful to browse slices of CT or MR series.
	Selection This tool selects a portion of image. This selected portion can then be used with several functions (image crop, send to print layout, auto windowing…).
	Arrow Use this tool to draw arrows on images. These arrows can be used with text annotations to show a particular interest on image.
	Drawing This tool allows doing free hand drawing on image, to annotate or point a particular region of interest.
	Text Annotation Use this tool to add a text annotation on image. Text font, size and color can be adjusted.
	Measurement Calibration Use it to do a calibration that will be used in measurements. This operation is not needed with DICOM images, just with imported JPEG or TIFF.

WARNING: Manual calibration of JPEG or TIFF images is risky. You must ensure the correctness of this calibration. Incorrectly calibrating an image may lead to an incorrect measurement scale implementation. As a result, all measurement values may be wrong.

	Distance Measurement Use this tool to measure distances on image. Measured distances are shown on the left side of image.
	Angle Measurement Use this tool to measure angles on image. Measured angles are shown on the left side of image. *Note: Acute (0° → 179.9°) angles are possible only (no obtuse angles 180°→ 360°).*
	Density pointer Use this tool to show a tool tip on the side of the mouse pointer, giving you image density under the pointer.
	Undo Cancels the last modification to an image on screen.
	Redo Re-applies the last modification to an image on screen.

*Note: You have the choice of measuring an angle by defining 3 points (where a common centre point is possible), or 4 points (where there is no common centre point). You may configure this by selecting **Options > User Preferences**, then selecting **Measurements**. Select the **2 Segment** option to allow angle measurements with 4 points. An administrator may also set the default behavior by performing the same action in **Options > Default Preferences.***

	Show/hide information on images (or CTRL+R) Information can be displayed as overlays on images. The nature of the displayed information is chosen among data embedded in the displayed DICOM image. Following kind of information are shown or hidden: Patient demographics , Scale, Annotations, Mark-ups …

*Note: **SE Client** administrator can define the nature of data displayed per modality.*

WARNING : **When information overlay is hidden, relevant measurements or recommendations (annotations) on images could be missed.**

If Imager Pixel Spacing is not present AND the image is a mammography image, the application will not provide any metric

information. Measurements are possible, but the measurement unit will be pixels only.

Instruction: By clicking the show/hide button, user is aware that diagnostically relevant information could be missed. It is therefore mandatory asking to **SE Client** administrator to customize for each user their preferences and therefore minimize the use of this feature.

*Note: If Estimated Radiographic Magnification Factor is present in an image, **SE Client** automatically correct all metric information depending on it.*

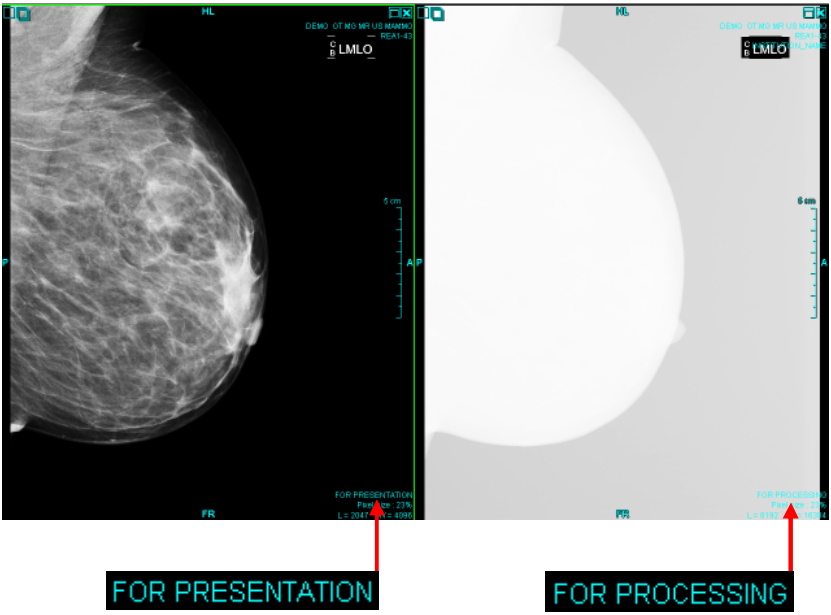
If **Display DICOM information on the side opposite the member** option is enabled in **Image** item of **User Preferences** submenu **in Options** menu**, SE Client** will attempt to prevent image demographics from overlapping image data.

WARNING : **Disabling this option will increase the risk of obscuring views with DICOM information.**

‘For Presentation’ & ‘For Processing’

It is not relevant for users to see “For Processing” images for diagnosis.

However if the two kinds of images are available, the type “For Presentation” or “For Processing” is displayed on the bottom right of each image.



Other tools available through menus and toolbars

Note: Spline or Ellipse ROI measurement data such as Standard Deviation or Average Density is calculated from image area that is covered by ROI only.In other words, these values are null outside the image area.

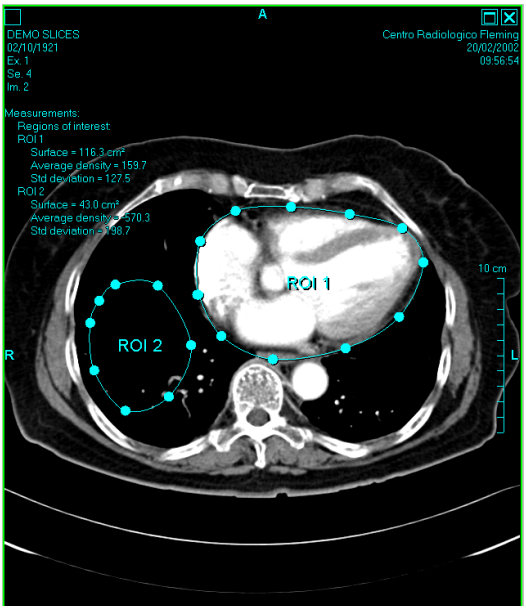
Spline or Ellipse ROI measurement value such as Standard Deviation or Average Density is always 0 on color images.

ROI with spline

You can do measurements on Regions Of Interest (ROI) having a complex shape, using a spline curve.

1. Select the “ROI with spline” tool,
2. Click image to place the different points of the contour,
3. Finish with a double click.
4. The ROI will be closed automatically, and the measurements will be shown on the left of image as below.

If you need, you can still adjust the ROI afterwards, by moving each point independently, the results are automatically recalculated.

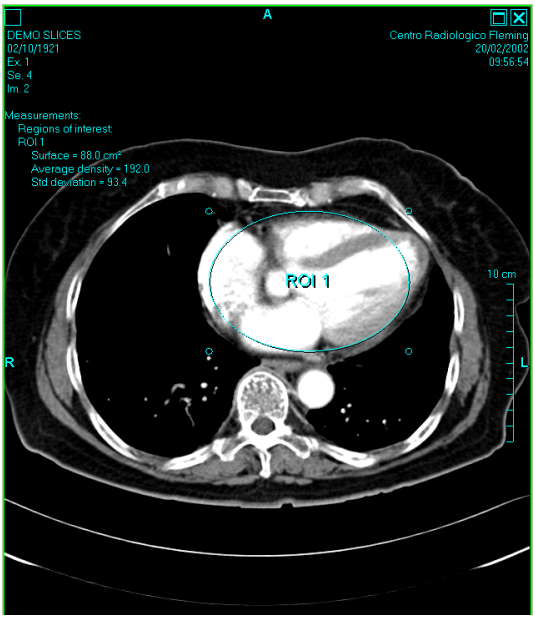


ROI with ellipse

You can do measurements on Regions Of Interest having a circular or elliptical shape.

1. Select the “ROI with ellipse” tool,
2. Click image and hold the mouse button
3. Move the mouse to get the appropriate shape
4. Release the mouse button.
5. The measurements will be shown on the left of image as below.

If you need, you can still adjust the ROI afterwards, by moving one of the four handles, the results are automatically recalculated.



WARNING: There is no guaranteed level of uncertainty for measurements made with the application and the precision of measurement results does not imply a particular uncertainty as uncertainty is influenced by a number of factors, many beyond the control of the product.

The uncertainty of measurements is limited by at least three factors:

- **The quality of the input data, including the uncertainty of the scanner calibration,**
- **User's ability to select appropriate points on the screen,**
- **The transformations inherent in generating images on a finite pixel display.**

It is the user's responsibility to understand these limitations and to use the measurement tools responsibly.

No treatment or diagnostic decisions should be based solely on measurements made with the application.

Instruction: If no measurement calibration has been performed, measurement unit is pixel.

Note: When calibrated, you can choose your own measurement unit by selecting one of Millimeters, Centimeters or Inches from Options > User preferences. Administrators may make a default choice for all users in Options > Default preferences.

Image display functions

In adition to tools that remain active, functions are punctual actions that you apply on images at a given time.

Nevertheless, a lot of functions are related to tools, or must be used in conjunction with particular tools.

Main functions available from toolbar

	Create New Folder This function creates a new empty folder (*patient*, *study* and *series*). This is only needed when you want to manually import images.
	Window Level Enables manual window leveling to adjust luminosity and contrast. .
	Contrast Inversion Inverts contrast for all images of series.

Note: When an image is contrast inverted, the inversion is not applied in the air (DICOM pixel padding value / range) but only on the anatomic area.

	Selection This function allows selecting a part of the image area. The user will be able to crop, mask the selected image area or apply auto windowing depending on the values embedded in the selected area.
	Automatic Windowing This function allows applying on selected image/series a windowing depending on values of a selected region on image.
	Default Windowing Goes back to default windowing for all images of series.
	Modality LUT This function allows applying on image a LUT sent by the modality (by default, GSDF toolbar only accessible by administrator).
	VOI LUT This function allows applying on image a LUT but only on a Value Of Interest (by default, GSDF toolbar only accessible by administrator).

	Presentation LUT This function allows applying a GSDF Presentation LUT on image (by default, GSDF toolbar only accessible by administrator).

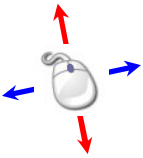
WARNING: By default, the GSDF toolbar is only accessible by administrator profiles. Disabling LUT (Modality, VOI, Presentation) application either information on image can be missed or create undetectable image corruption.

	Glossary **This function allows defining and memorizing text you frequently use, in order to place it on images without needing to retype it every time.**
	Clear all Annotations Clicking this button removes all annotations on images of series (text, arrows, free drawing).
	Clear all Measurements Clicking this button removes all measurements on images of series (distances, angles, ROI, orthopaedic …).
	Mask on Selection After drawing a selection, this function puts a mask on image zone defined by selection.
	Crop Image on Selection After drawing a selection, this function allows to crop image according to selection.

WARNING: User has to keep in mind that cropping an image is risky and could lead to information deletion within the processed image. In a Teleradiology environment the risk is higher.

Instruction: User must be sure that any relevant information could be deleted before sending it to the remote specialist who has no access to the raw image.

Windowing - Leveling Images



Live window leveling

Windowing (contrast and luminosity) can be adjusted on all displayed images in **SE Client** using the right mouse button.

To adjust windowing, right click an image, keep button down, move the mouse **vertically** (window width or **luminosity**) or **horizontally** (window level or **contrast**), then release the button when you get the windowing you want.

Window level (**L**) and window width (**W**) values are displayed in the bottom right corner of images.

Windowing is applied to all images of the series and saved in the database. This way, after applying a particular windowing, if you close then reopen images, your windowing is preserved. Press R to reset the window leveling to its original state.

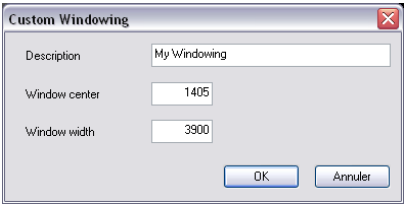
SE Client applies a greater level of window leveling (known as Smart Windowing) on an area of an image where the image depth is greatest.

Instruction: The multiplication factor for smart window leveling is defined by your administrator. If the results of window leveling do not meet expectations (for example, insufficient precision in window leveling adjustments), please contact your administrator to adjust the settings.

WARNING: If the multiplication factor is too high relative to the bit depth of the image, the application will apply excessive window leveling and you may miss important information.

Saving a window level

After adjusting the window level, if you want to save it in order to reuse it at any time, right-click image and choose Windowing > Save As… in the context menu.

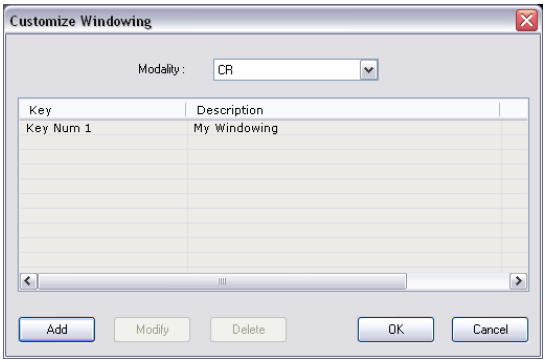


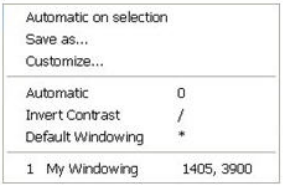
Give a name to your custom windowing then click **Ok**.

Your windowing will be saved in the custom windowing list, and a key shortcut will be attributed to quickly apply it on images.

Key shortcut can be a key from 1 to 9. If you have more than nine custom windowing, they will not have key shortcuts.

Your custom windowing will also be accessible from the **Windowing** menu.





Note : Each custom windowing is saved for a particular modality, so there is a list of custom windowing and shortcuts per modality.

*Note : For CT modality, **SE Client** comes with a predefined list of custom windowing (brain, posterior fossa, bone, chest, abdomen and ear).*

Apply a custom window level

To apply a custom windowing, use its keyboard shortcut (see above), or select it in the **Windowing** menu.

*Note: Press "0" to let **SE Client** calculate and apply an optimized windowing on selected image, based on minimum and maximum pixel values found in the image.*

Window Leveling and VOI LUT

SE Client applies any window leveling you specify to an image before it applies the effects of a Value of Interest Look up Table (VOI LUT). This results in a couple of important behaviors in the client you must be aware of.

- When saving a window level, the values that are saved are the ones recorded **before** the VOI LUT is applied to the image. As a result, the values saved may differ from the values that are displayed on screen.

- When applying a saved window level to an image, the actual brightness and contrast that is applied is the combination of the saved window level and the application of the image VOI LUT.

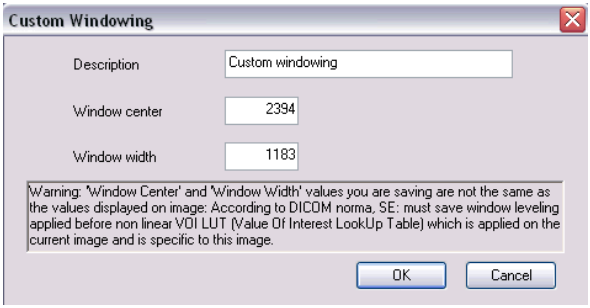
Note : A VOI LUT is specified by the modality to define the correct brightness and contrast for the image you are looking at.

When a VOI LUT is non linear and applied, **SE Client** displays **Window Center** and **Window Width** that correspond to adjusted range and center of input of the VOI LUT.

WARNING: **When a non-linear VOI LUT is applied, it must be still possible to save ("save as") the windowing but the application must notify the user that the actual window width and centre saved are the width and centre values before application of the non linear VOI LUT.**

'Window center' and 'Window width' values you are saving are not the same as the values displayed on image:

According to the DICOM standard, application must save window levelling applied before non linear VOI LUT (Value Of Interest LookUp Table) which is applied on the current image and is specific to this image.


Custom Windowing
Description
Custom windowing
Window center
2394
Window width
1183
Warning: 'Window Center' and 'Window Width' values you are saving are not the same as the values displayed on image: According to DICOM norma, SE: must save window leveling applied before non linear VOI LUT (Value Of Interest LookUp Table) which is applied on the current image and is specific to this image.
OK
Cancel

WARNING: When applying a predefined window level (after "save as") the actual window level applied is the combination of predefined Window level and application of the VOI LUT.

Note: When there is a non-linear VOI LUT, displayed windowing is not linear either.

The <Shift> key and Mouse Buttons

The <Shift> key
Except a few exceptions, by default in **SE Client** functions and tools are applied to all images of the series.

If you want to restrict current function or tool only to one selected image, press the <Shift> key when applying it.

Left button
Clicking the left button applies current function or tool on image.

Right button
Clicking the right button displays the contextual menu on image, to choose a function or tool to apply.

Left + Right buttons
Clicking the left and right buttons together does a zoom of selected image, regardless of the currently selected tool or function.

Wheel button
If you have a mouse wheel enabled mouse attached to your computer, select Options > User Preferences > Mouse to determine its behaviour. By default, the mouse wheel will zoom the image on screen. You may also change the configuration to Browse in Images.

Note: Zooming with the mouse wheel is not as precise as using predefined zoom factors.

Navigation toolbar

The amount of images generated during a slice imaging modality acquisition (CT, MR, PET …) is generally high (hundreds of images). Therefore **SE Client slice imaging** navigation bar is a user-friendly tool allowing an easy navigation in slice imaging series.

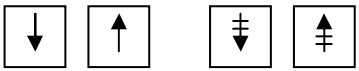
	Browse in image
	Previous/Next series
	Previous/Next page
	Previous/Next image

To browse in image:

1. First of all, left click the "Browse in image" toggle button,
2. Then, left click in selected slice, keep button down,
3. Move the mouse vertically or horizontally to navigate between slices,
4. Then release the button when you get the image you want.

"Browse in image" feature can be used with the mouse scroll button (user option), thus you can browse images thanks to this button. However, the "zoom" function will not be allocated to the mouse scroll button function anymore.

Note: The keyboard Up/Down arrows shortcuts can be use as "next and previous image display" buttons. The keyboard End/Start shortcuts can be use as "next and previous page display" button:



Scout View

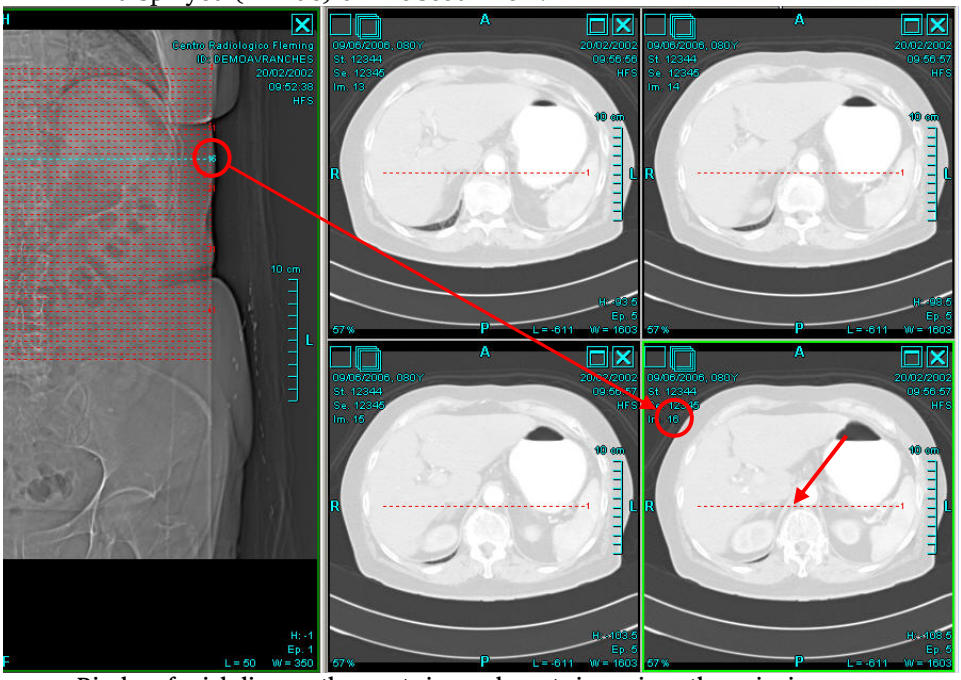
	Show Slices Position (Scout View) When displaying acquisition related series, switching this function ON displays lines corresponding to spatial positions of slices.

A Scout view is a coronal (frontal) or sagittal (lateral) reconstructed slice. This kind of image is interesting and commonly used to locate an axial slice image on a sagittal or coronal view.

When a coronal (frontal) or/and sagittal (lateral) “scout view” is/are available in a slice imaging study, user can display at the same time the common axial slice images and the scout views.

By clicking the “Display slices” toggle button, on the one hand the axial slices are depicted on the scout view and on the other hand the scout view slice axis is displayed on axial images of the series.

When user selects an image in the series, the corresponding slice is highlighted (in blue) on the scout view. The slice number is also displayed (in blue) on the scout view.



Display of axial slices on the scout view and scout view axis on the series images.

To disable “Display slices” function, user must click on “Display slices” toggle button once again.

Note : It is possible to display several scout views (lateral and frontal) and enable “Display slices” functionality for each of them at the same time.

When **Display slices** button is enabled, a contextual menu is available by right clicking on a slice of the scout view.

By using this menu, user can chose to display on the scout view either all slices, 1 of 10 slices or selected slice only.

- **Series synchronization**

  SE Client manages series synchronization (Manual or Automatic). It is an efficient and easy way to compare slice imaging series (e.g. CT with or without contrast product, series from prior and current studies …).

  When series are synchronized, the following modifications are applied to both of the synchronized series at the same time: panning, zooming (predefined zooms), rotation, flip, zone selection, next image, next page …

  Note: Windowing filters, manual windowing and cine mode tools are not applied to the both synchronized series. Only two series can be manually synchronized.

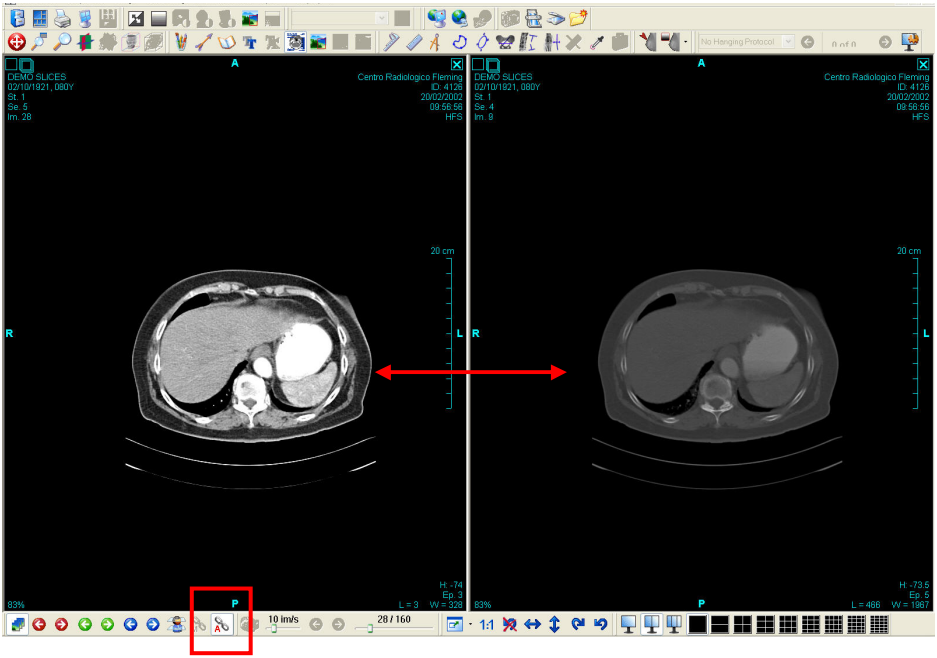
  Automatic synchronization

  The automatic synchronization can be performed by two ways:

  1. No series are displayed. User clicks on the **Synchronize study's series** toggle button to enable the functionality. Later, the two opened series will be automatically synchronized.

  2. The **Synchronize study's series** toggle button is disabled. Whether user opens two series of the study, they will not be synchronized. To synchronize the displayed series, user has to click the toggle button.

  Note : Automatic synchronization is a smart tool. Indeed, SE Client will automatically choose corresponding slices (related to physical patient position) within the two selected series of the same study. In other words, even if series have different slice number and/or different slice spacing, the selected image (in first series) is always synchronized to the corresponding image (in second series) on which patient position is the same one.
  An automatic synchronization can only be performed on series of the same study in order to allow application to match the two images due to patient position monitoring.



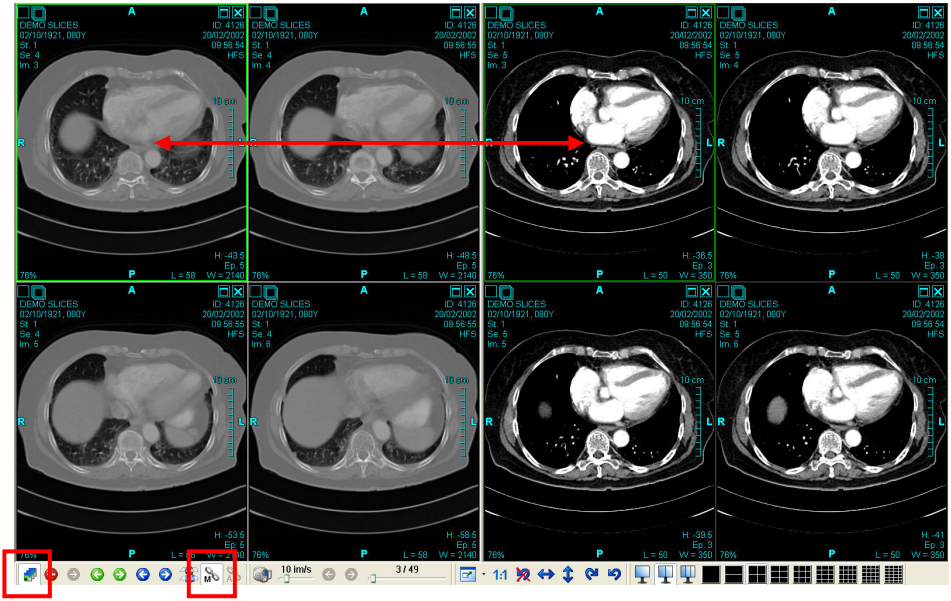
Manual synchronization

1. Enable **Browse in images** by left clicking the toggle button.
2. Select an image in the first series.

3. Left click on the **Manual synchronization** toggle button.
4. Select the corresponding image in the second series.

Now, your two series are synchronized.

To disable the synchronization, left click one more time on the **Manual synchronization** toggle button.



WARNING: Manual synchronization is commonly used for series of different studies because, between the both synchronized studies, patient position might have changed (No patient position matching).
It is not a smart tool because user has to manually choose which slice of first series matches to second one.
Moreover, when scrolling only one image in one of the series, it will automatically scroll one image in the other one.
User has to keep in mind that performing a manual synchronization is risky. Indeed, wrong synchronization (wrong matching) exists and this kind of synchronization is the user's responsibility.

- **Cine Mode**

  SE Client can display a series of DICOM images (CT scans, MRI…) or DICOM sequences (ultrasound, cardiac coronarographies, nuclear medicine…) as a video sequence.

  To play a series of DICOM images, select an image of the series then click the “Start / Stop Cine” button below.

  To play a sequence, select it then click the “Start / Stop Cine” button below.

  The “Cine Toolbar” gives you all buttons to control cine mode.

	Start / Stop Cine Use this button to stat or stop playing cine of selected series / sequence. This can also be done pressing the <Space> bar on the keyboard.
	Previous Frame When cine play is stopped, displays previous frame in selected series / sequence.
	Next Frame When cine play is stopped, displays next frame in selected series / sequence.
	Cine Speed Use this slider to adjust cine speed.
	Browse Frames When cine play is stopped, use this slider to quickly browse in series / sequence frames.

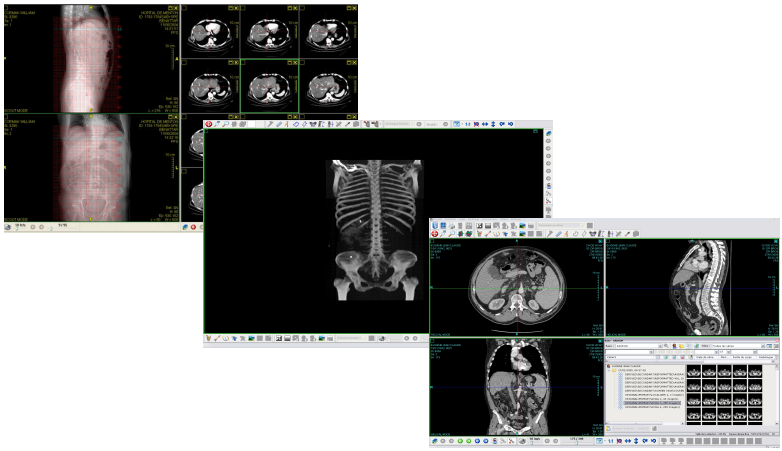
3D Functions

WARNING: MPR and MIP are additional tools to improve diagnosis thanks to slice imaging rendering in 3D. Information is created in images during a MIP or MPR reconstruction. By consequent, these new images are not diagnosable anymore.

Instruction: Radiologist should always make his final conclusions on the original slices to lower wrong diagnosis risk.

Cine mode and **Send to Printer layout** are not possible when using MIP and MPR reconstructions. To print it, save your reconstructions as new series previously.

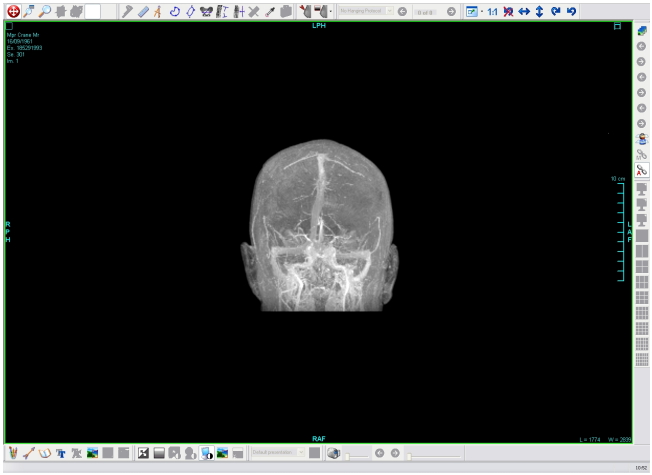
Note: During a MIP or MPR loading, the selected series are verified (inter slice thickness, images number …) to insure that the images/volumes will be correctly reconstructed. This verification extends the loading time. However, if slice imaging acquisition modalities (CT, MRI, PET scan …) series are reliable, this verification option can be disabled by a technician to lower the loading time.



MIP

What is a MIP?

A Maximum Intensity Projection (MIP) is a volume visualization method for 3D data that projects in the visualization plane the voxels with maximum intensity that fall in the way of parallel rays traced from the viewpoint to the plane of projection. That implies that a MIP rendering is exactly symmetrical to his opposite. Due to its way of creation, a MIP image does not provide good sensation of depth; thus, several MIP frames of the same volume are computed with a different viewpoint to create the sensation of rotation and 3D.



MIP Launching process

Note: Required conditions to launch MIP functionality:

- only with slice imaging series

- only when there are more than 30 images in the selected series

- only with native images

- but not when the cine mode is running

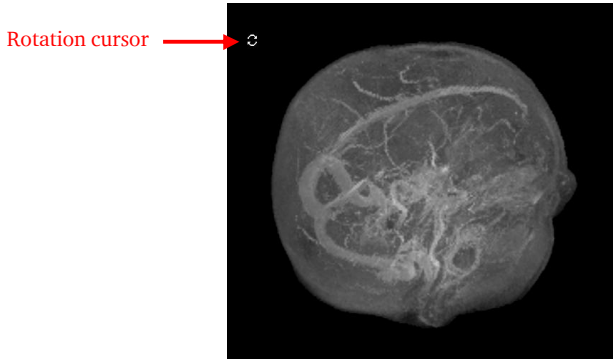
1. Select a slice imaging series in the browser window.
2. Open this series.
3. Click on the MIP toggle button.
4. Wait the loading end.

*Note: **SE Client** allows several MIP displays at the same time. Of course, user can also display common series while a MIP reconstruction is displayed. However, when a MIP is performed on a series, this last one will be closed. In other words, when MIP application is closed, the series will not be displayed anymore.*

MIP rotation

User can rotate the MIP volume in order to improve the sensation of depth and render a 3D visualization according another view (different from axial, frontal and lateral). To perform such navigation, user can enable the panning button and get the rotation cursor (see figure), left click on the image , keep button down, move the mouse vertically and/or horizontally to rotate the image and release the button when he gets the MIP view he wants.

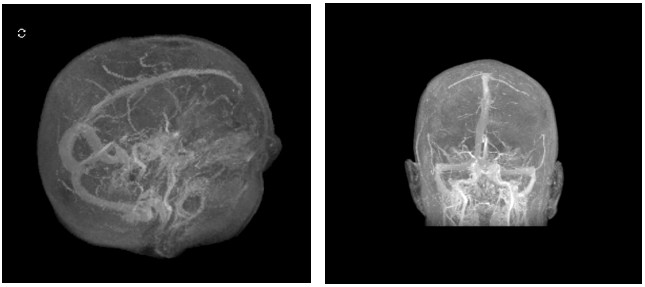
During the rotation the image quality is rather low in order to minimize the computation process and perform a smooth rotation. However, when the rotation is stopped (left click release) the obtained image quality is optimal.



Note: All standard tools are available (zoom, leveling, measurement …) but the panning tool is replaced by the volume rotation one (Enabling the panning/rotation tool will cancel measurements). Even if the whole functionalities are available, some of them are not relevant in MIP context.

MIP reset

While processing a MIP rotation, a user can become lost in the volume and may want to return to the original MIP view. By clicking the "reset the MIP" button, the original MIP view will be automatically displayed.



Rotated MIP (left), original MIP view after reset (right).

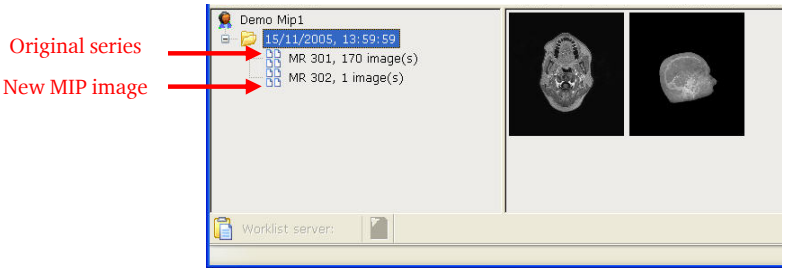
MIP image saving

While performing a rotation on a MIP volume, you can find an interesting view and want to save this image.

1. Click the “save” button
2. The following window appears

Note: By default, a series description is set up but you can replace it. A check box allow you not to be prompt next time (except if Shift is down) when saving a MIP series (here series is only one image). Check this box if you whish.

3. Click “ok” button to confirm.
4. Wait the end of saving or cancel
5. The new MIP image is saved in the original study



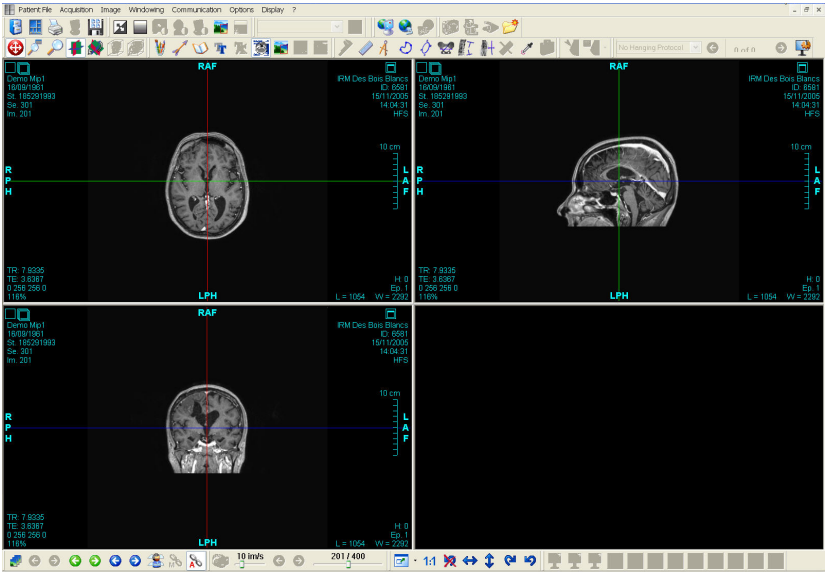
MIP end

To close the MIP application, user has to left click one more time on the MIP toggle button.

MPR

What is MPR?

MultiPlanar Reconstruction (MPR) is a post processing technique that reconstructs the axial images into coronal, sagittal and oblique anatomical plans. User should be able to navigate into the body parts thanks to user-friendly tools: moving and rotation of the three axis, zooming … This functionality is intended to help user for space location and speed up viewing/diagnosis. The oblique anatomical plan processed during handling can be saved as new series.



MPR Launching process

Note: Required conditions to launch MPR functionality:

- only with slice imaging series

- only when there are more than 30 images in the selected series

- only with native images

- but not when the cine mode is running

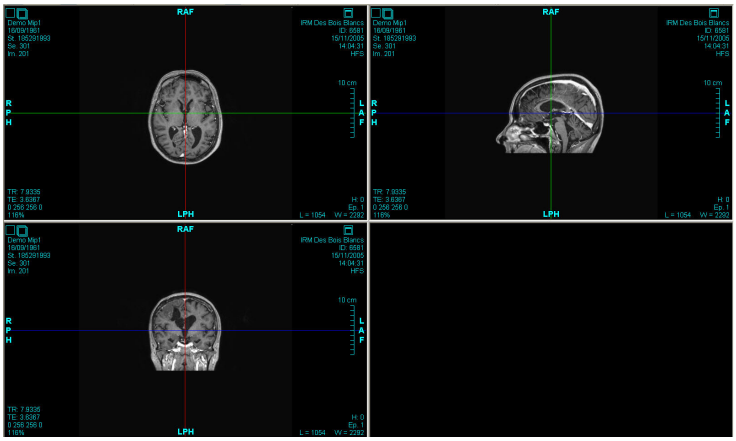
1. Select a slice imaging series in the browser window.
2. Open this series in the Main Application Window
3. Click on the MPR toggle button
4. Wait the image loading progress bar to finish.

WARNING: When launching a MPR visualization with SE Client Slice Imaging, user has to keep in mind that all the active series will be closed.

MPR display and layout

When an MPR reconstruction is applied on a slice imaging series, the following layout is proposed by default.

Axial view	*Sagittal (lateral) view*
Coronal (frontal) view	



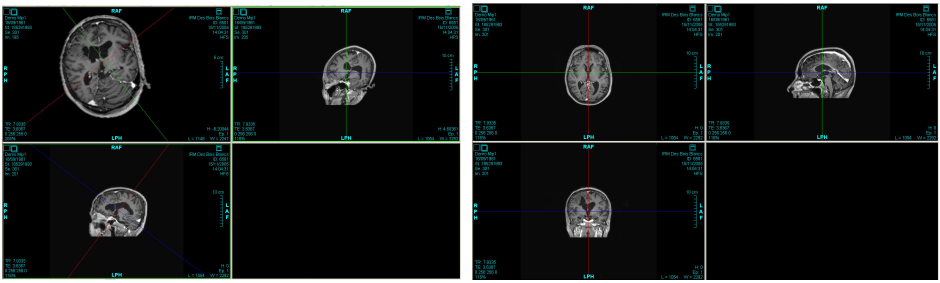
WARNING: Once user has performed a single rotation on one of the three axes (view), this layout is not applied anymore. Now, the three planes represent new views (different from axial, coronal, sagittal).

Note:

User cannot maximize images while using MPR mode.

MPR reset

While navigating in MPR views, a user can become lost in the new views (plans) and may want to return to the original MPR views. By clicking the “reset the MPR” button, the original MPR views (plans) will be automatically displayed.



MPR layout before (left) and after (right) reset

MPR smart cursor

When the panning toggle button is enabled, a smart mouse cursor is available. The cursor icon depends on its location in the image.

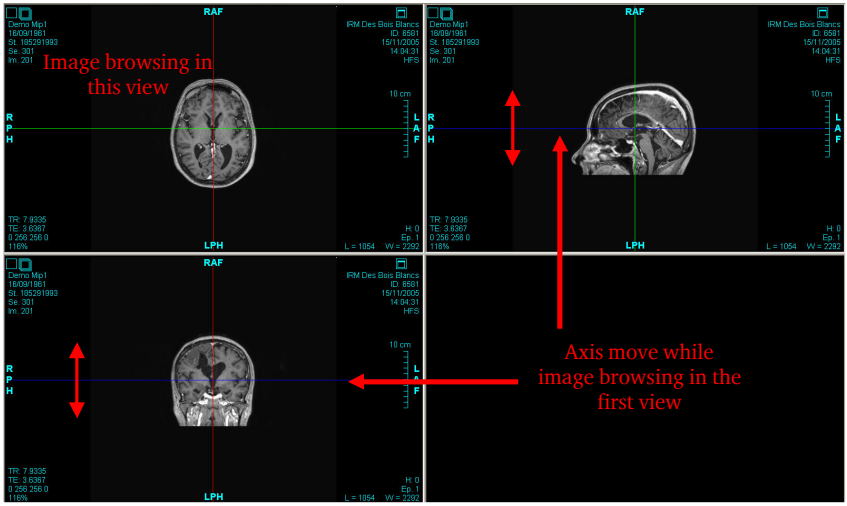
Image panning cursor, anywhere on the image but the axis

Axis move cursor, only on the selected axis near the axis intersection

Axis rotation cursor, only on axis (of course, not near the axis intersection where the cursor will change into a axis move cursor)

Note : User can perform axis move/rotation, panning, zooming, leveling, measurement, browse in image in the three views. Whatever he does the axis remain perpendicular.

While browsing through images of a selected view, user can follow the evolution of this browsing resulting from the axis movement on the other views.



MPR series saving

While navigating in the MPR plans, you can find an interesting view and want to save the series corresponding to this view.

1. Select the new view of interest
2. Click the “save” button

Note: By default, a series description is set up but you can replace it. A check box allow you not to be prompt next time (except if Shift is down) when saving a MIP series (here series is only one image). Check this box if you whish.

3. Click “ok” button to confirm.

4. Wait the end of saving or cancel

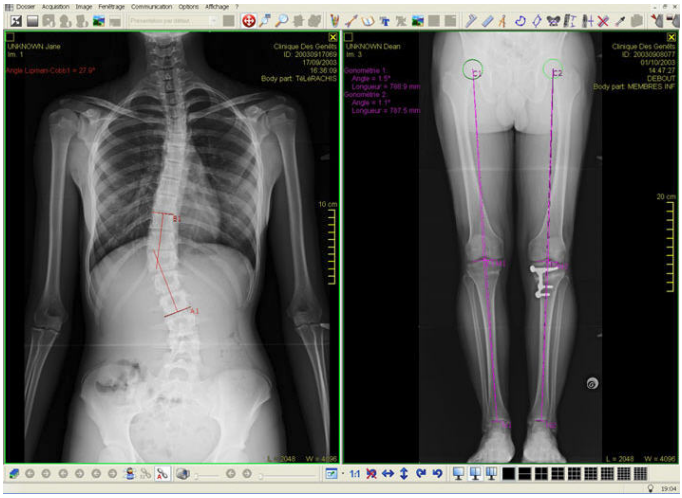
Note: If you cancel the MPR selected series during saving, the images which have been saved before canceling will be created.

5. The new MPR series is saved in the original study

MPR end

To close the MPR application, user has to left click one more time on the MPR toggle button or open new series/studies from database window.

Orthopaedic tools



WARNING: There is no guaranteed level of uncertainty for measurements made with the application and the precision of measurement results does not imply a particular uncertainty as uncertainty is influenced by a number of factors, many beyond the control of the product.

The uncertainty of measurements is limited by at least three factors:

- The quality of the input data.

- The user's ability to select appropriate points on the screen.

- The transformations inherent in generating images on a finite pixel display

Instruction : It is the user's responsibility to understand these limitations and to use the measurement tools responsibly.

No treatment or diagnostic decisions should be based solely on measurements made with application. In addition, while application has been tested intensively, it is impossible to completely verify any piece of software and a possibility of errors in the program remains.

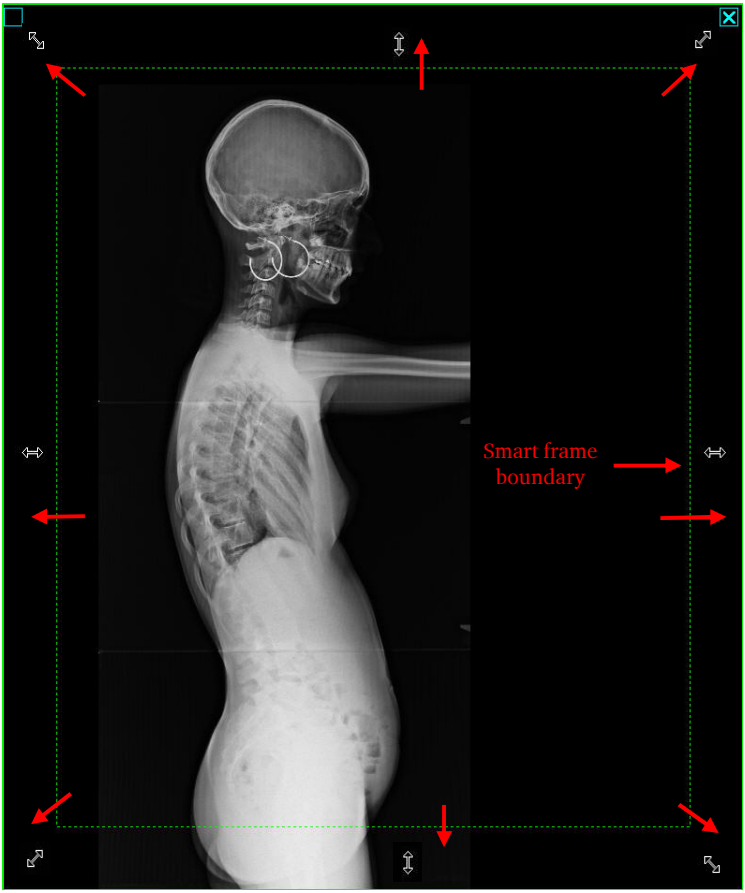
General orthopedics tools

General functionalities (smart frame display, online guide) are provided and can be applied to the three specific measurement tools (Gonometry, Coxometry, Scoliosis measurement).

The smart frame

When one of the three orthopedics tool is enabled a specific “smart frame” (green dot line) is displayed. It indicates that user is now in an orthopedic mode which is a measurement mode. By consequence, to optimize and enhance productivity, all the actions must be easily performed.

This is why the user will be able to easily pan an orthopedics image: by positioning his mouse cursor outside the smart frame boundaries, the smart frame will automatically move.



Smart frame representation (red arrows represent motion possibilities)

WARNING: As soon as user clicks on another icon in the SE Client application the orthopedic mode will be disabled and the smart frame will disappear.

Note:

The left button of the mouse is dedicated to the landmarks positioning.

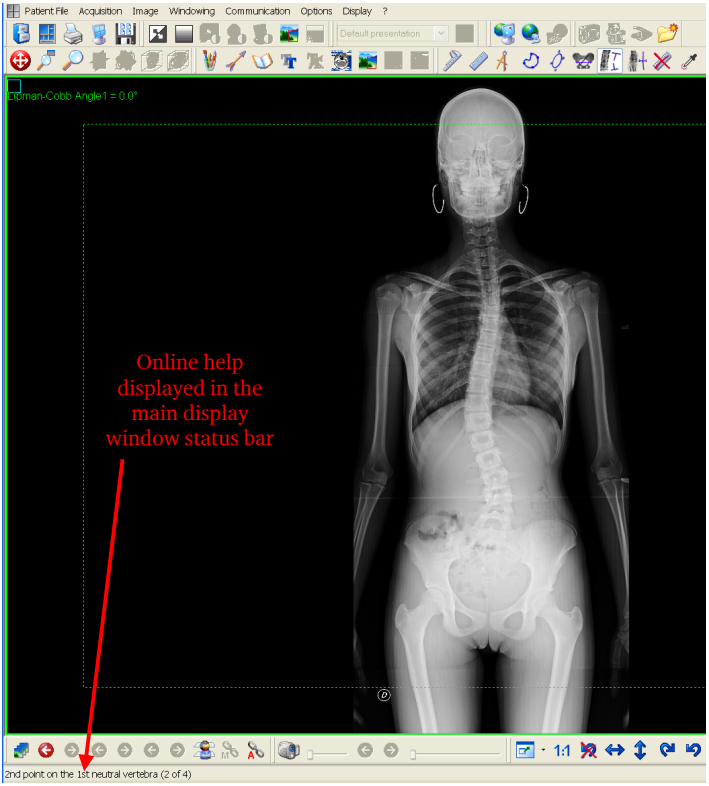
The right one is dedicated to image windowing.

The scroll button is dedicated to image zooming.

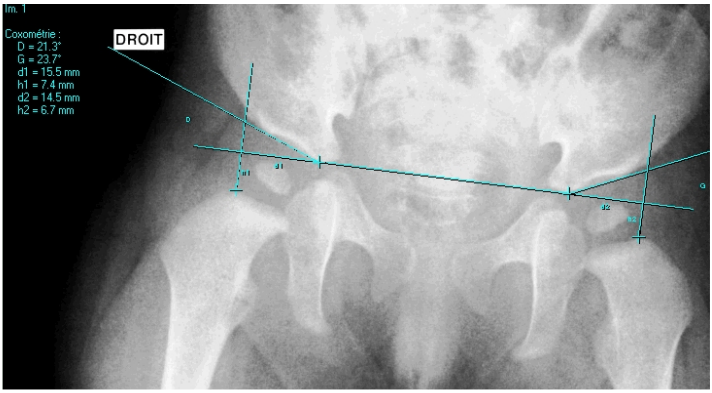
The online guide

As soon as one of the three orthopedic tools is selected, an online guide is available in the “main display” window status bar .
This help indicates, step by step, thanks to short sentences, what action user has to perform. Steps will be described in details for each tool:

- Coxometry,
- Gonometry,
- and Scoliosis (Lipman-Cobb).


Patient File Acquisition Image Windowing Communication Options Display ?
Lipman-Cobb Angle1 = 0.0°
Online help displayed in the main display window status bar
2nd point on the 1st neutral vertebra (2 of 4)

Coxometry



This is a pelvis measurement function which provides angles and distances measurements. These measurements are done on a frontal radiography of babies (an OMBREDANNE construction).

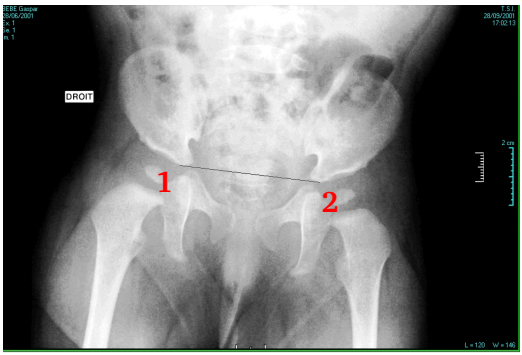
WARNING: If the image you are measuring comes from a secondary digitization or was imported from the TIFF or JPG format, you have to calibrate your measurements before starting (See Standard Features User Manual).

To do the measurements, first click on icon *"Coxometry"*

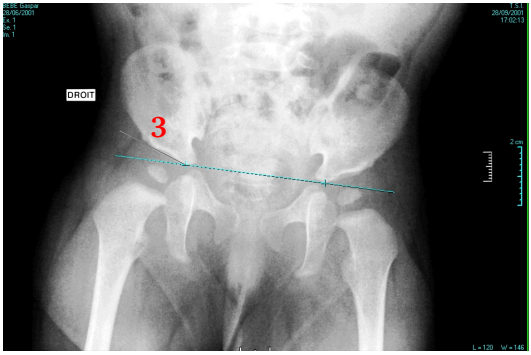
Then, you have to click on different anatomic landmarks, in a specific order, to draw lines and measure angles.

Follow the drawing protocol with the different steps below which are also described in the status bar.

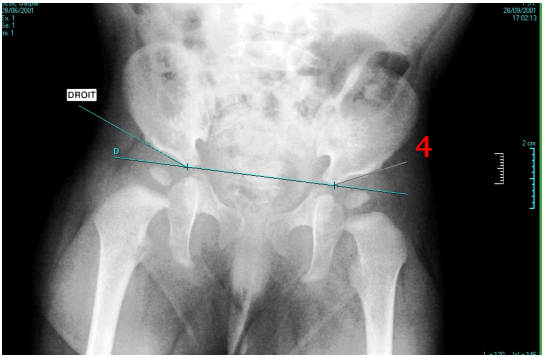
1. Click on the most internal point of the right acetabulum (**point 1**) and on the most internal point of the left acetabulum (**point 2**) to draw a line. The application then draws a line passing through the two points.



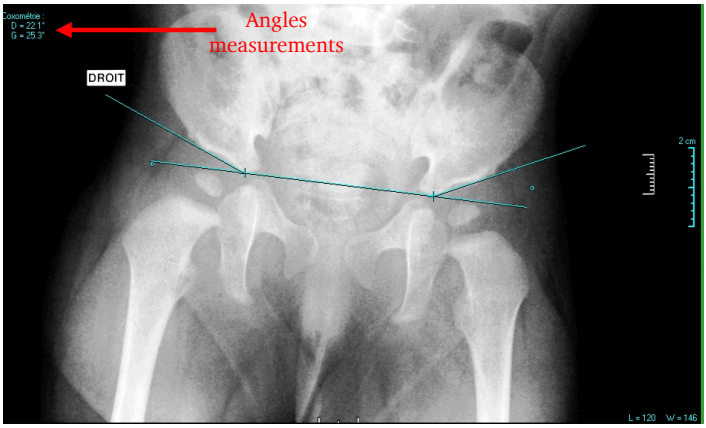
2. Click on the most external point of the right acetabulum (**point 3**). The application draws a line passing through points 1 and 3.



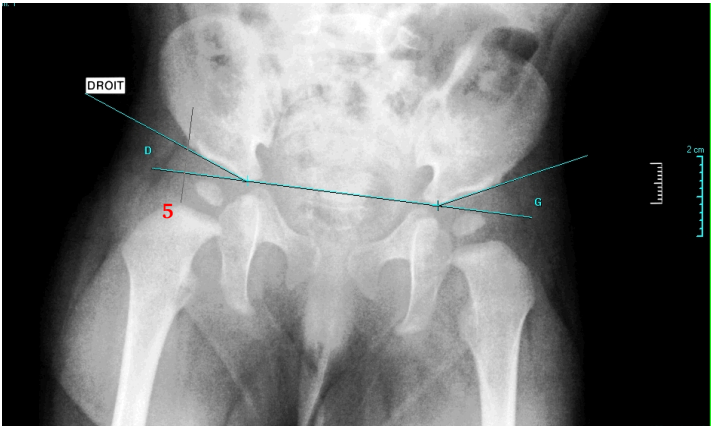
3. Repeat operation for the most external point of the left acetabulum (**point 4**). The application draws a line passing through points 2 and 4.



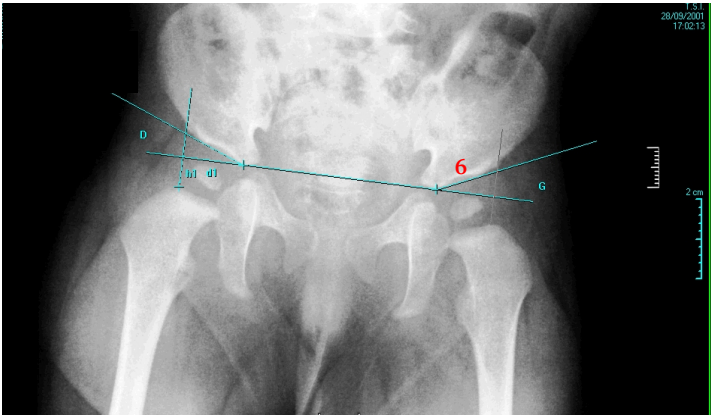
4. Press “Enter” key or click on the top of the segments to display the measured angles. The results of the measurements will be displayed as follow.



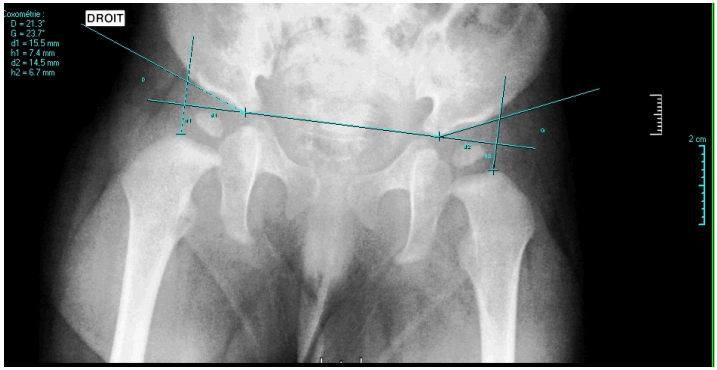
If you want to have the borderline of the head towards the acetabular roof, click on the top of the right femoral head (**point 5**) to draw the line passing through point 3 and this point.



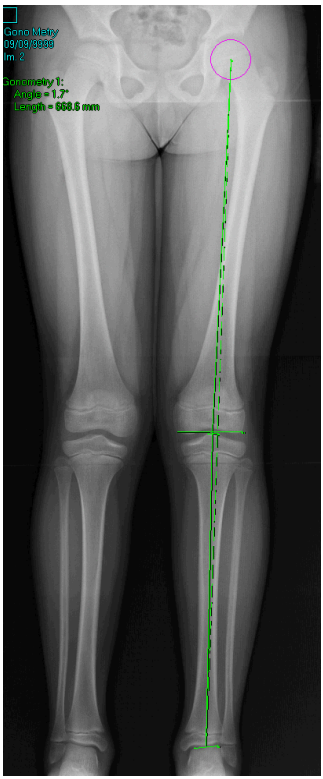
5. Repeat operation for the left side (**point 6**).



6. After clicking on the last anatomic point, the results will be displayed as below



Gonometry



The gonometry method implemented in **SE Client** is the "Duparc and Massare" one.

WARNING: The "Gonometry" function is a measurement function on a radiological image. If the image you are measuring comes from a secondary digitization or was imported from the TIFF or JPG format, you have to calibrate your measurements before starting (See Standard Features User Manual).

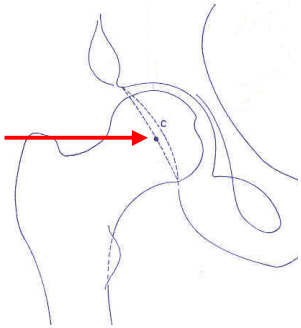
To do the measurements, first click item *"Gonometry" icon*

Then you have to click on different anatomic landmarks, in a specific order, to draw lines and measure angles.

Follow the drawing protocol with the different steps below which are also described in the status bar.

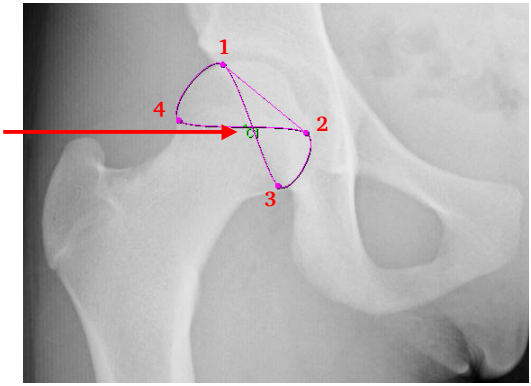
The Duparc and Massare method calls for radiologist to point three landmarks.

1. **First landmark: femoral head center (C)**



This landmark can be positioned

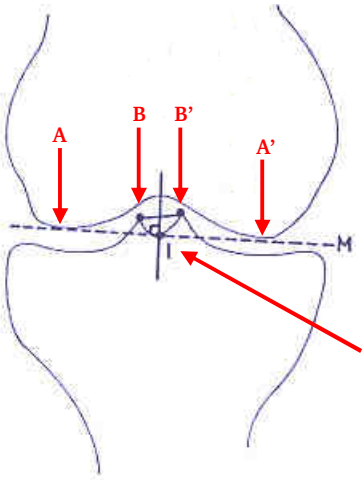
- either by positioning approximately in the center with a left click,
- or by positioning the center of a circle and drawing a circle,
- or with a geometric shape help: user has then to position 4 landmarks following the order depicted on next figure.



2. Second landmark: radiological centre of joint (I)

This point is obtained by the crossing between a line tangential to the femoral condyles (**M**) passing through **A** and **A'** with a perpendicular line passing through the centre of a segment delimited by the two upper extremities of the eminentia intercondylaris (**BB'**).

Method:
User has to position A and A' landmarks on femoral condyles, then **SE Client** will automatically draw the segment (**M**) which extremities are **A** and **A'** points.
User then chooses two points **B** and **B'** on the eminentia intercondylaris. The application draws the segment **BB'** and the perpendicular line to **M** crossing **BB'** in its middle. This point is the radiological centre of joint (**I**).

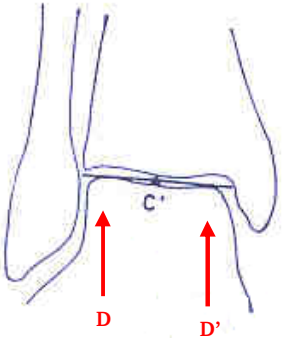


3. Third landmark (C')

C' is in the middle of the segment defined by the internal point of the lateral malleolus (on fibula in the example) and the medial malleolus (on the tibia in the example). This segment should be tangential to the upper boundary of the talus.

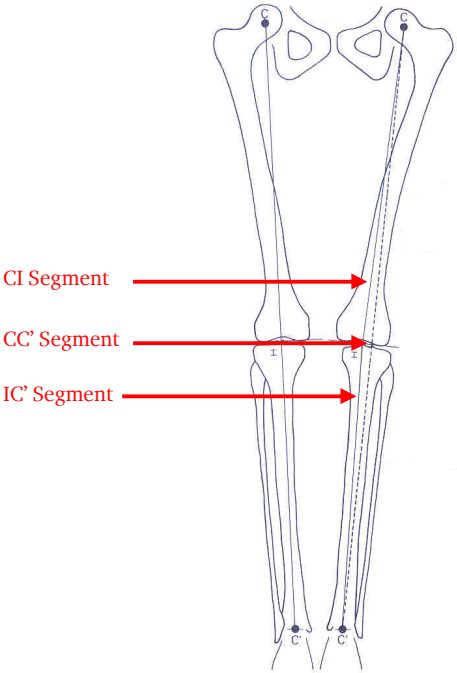
Method:

User chooses two points on the malleolus D and D'. the application then draws the segment tangential to the talus passing through D and D' and the middle of this segment C'.



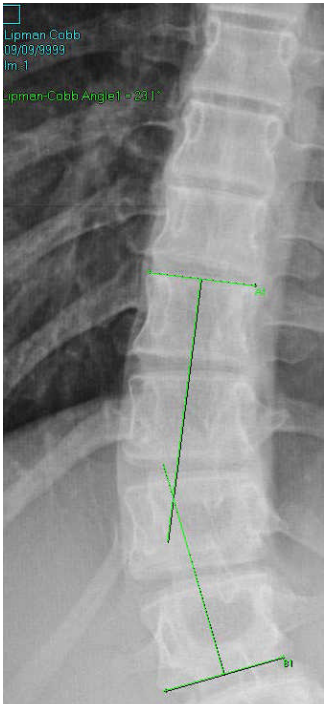
4. Segments drawing

When those points are defined, **SE Client** draws the CC', CI and C'I segments and gives the angle CIC'.



Note: User can perform the second leg "Gonometry" measurement faster than the first one by moving the landmarks of the first leg on the second one only.

Scoliosis measurement



The Scoliosis measurement implemented in SE follows the “Lipman Cobb” method.

WARNING: The “Scoliosis” functionality is measurement functionality on a radiological image. If the image you are measuring comes from a secondary digitization or was imported from the TIFF or JPG format, you have to calibrate your measurements before starting (See Standard Features User Manual).

To do the measurements, first click the “Lipman Cobb” icon

Then you have to click on different anatomic landmarks, in a specific order, to draw lines and measure angles.

Method:

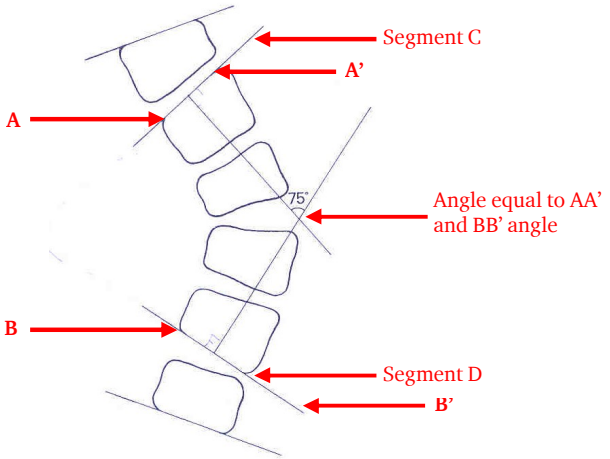
The radiologist chooses two points on the upper most inclined vertebrae and two points on the lower most inclined vertebrae. The application then draws the segment passing through the two points of the upper most inclined vertebrae and the segment passing through the two points of the upper most inclined vertebrae.

Then **SE Client** draws the angle between two segments by tracing perpendiculars segments passing through the middle of the segments drawn on vertebrae.

1. Select two points (**A** and **A'**) on the upper most inclined vertebrae. The application draws the segment passing through those two points (**C**).

2. Select two points (B and B') on the lower most inclined vertebrae. The application draws the segment passing through those two points (D).

3. Then the application draws perpendicular lines passing through the middle of each segment. The crossing of the two perpendiculars lines gives the angle of the scoliosis.



Note : Radiologist has the possibility to perform several scoliosis constructions on the same image (commonly two: R dorsal and R lumbar).

Orthoview™ Application integration

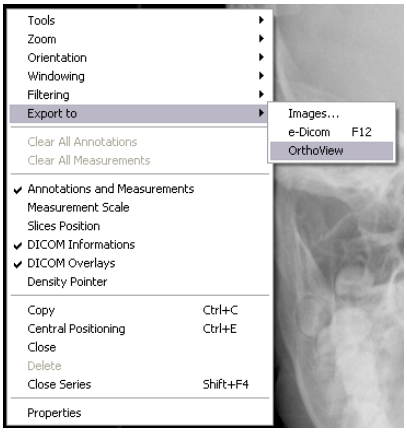
Note: Orthoview™ is available for US and Canada markets only.

SE Client allows automatically launches of **Orthoview™** as a modal application and exports displayed images to it for orthopaedic use.Templates and reports created in **Orthoview™** are automatically imported in **SE Client**.

WARNING: When launching Orthoview™ for templating make sure that images are correctly calibrated.

How to launch Orthoview™ via SE Client application

1. Open series or images (at least one image)
2. Select an image
3. Click on **Orthoview™** button OR right click on the selected image and point to **Othroview** on the **Export To** menu.

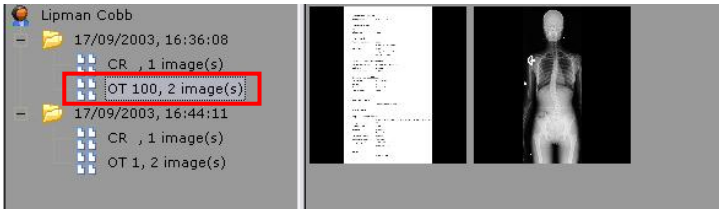


Note: This functionality is enabled if at least one image is displayed.

Instruction: Please refer to Orthoview™ user manual for further information.

How to import data from Orthoview™ via SE Client application

1. Perform you templating in Orthoview™ application
2. Close Orthoview™ application and specify **series description** and **series number** values and save examination
3. Templates and reports are saved in **SE Client** as a new series with the series description and series number entered in Orthoview™ (if examination has been saved in Orthoview™).



*Note: Templates and reports are saved as **secundary** DICOM image type and **OT** modality.*

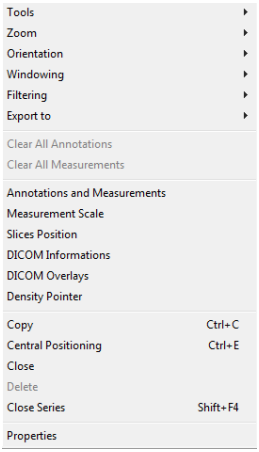
These templates and reports can be displayed and printed by **SE Client** as well.

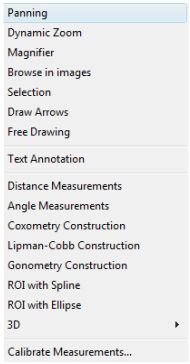
*Note: No temporary files are left around after the integration between **SE Client** and **Orthoview™** is no longer in use to avoid having private patient data on local files.*

Contextual menus on images

At any time, you can right click an image on screen to display the contextual menu and access a particular item.

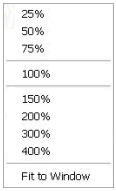
All items of the contextual menu can also be accessed in application window Image menu or some toolbar buttons, but contextual menu sometimes provides a quicker and more convenient access.





Tools submenu

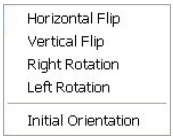
This submenu allows access to main tools.



Zoom submenu

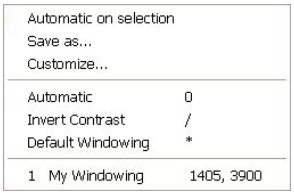
This submenu allows access to predefined zoom values. Default zoom for images is “Fit to Window” (images smaller than window are kept at original size, bigger images are shrank to fit in window, keeping original proportions).

Note: You should use this tool when looking for a precise zoom factor (e.g. 100%, 200% …). The precision of this method is better than zooming with mouse (where the zoom factor unit is truncated).



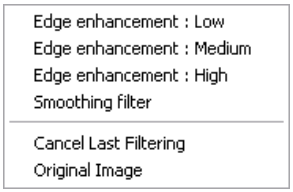
Orientation submenu

This submenu allows applying rotations or inversions on images, or going back to original orientation.



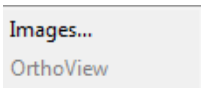
Windowing submenu

This submenu allows to invert contrast, change or go back to default images windowing, save and apply custom windowing.



Filtering submenu

This submenu proposes four filters to apply on images. Filters can be canceled afterwards if needed.



Export to submenu

This submenu allows exporting selected images, or sending to OrthoView™ software (when installed).

Clear all annotations

This item removes all annotations on images of the series (text, arrows, free drawing).

Clear all measurements

This item removes all measurements on images of the series (distances, angles, ROI, coxometry).

Annotations and measurements

This item has an ON/OFF status, depending if you want to show or temporarily hide all annotations and measurements on images.

Measurement scale

This item has an ON/OFF status, depending if you want to show or temporarily hide measurement scale (calibration) on images.

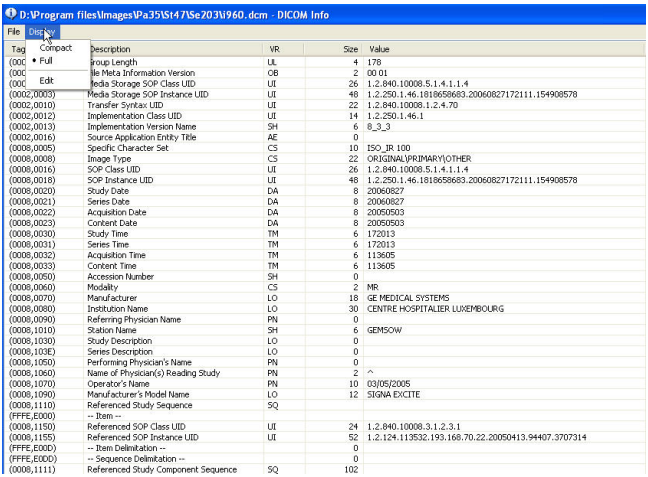
Slices position

This item has an ON/OFF status, depending on whether you want to see lines corresponding to spatial positions of slices between series.

DICOM information

This item has an ON/OFF status, depending if you want to show or temporarily hide DICOM information (patient's name, study date…) in the four corners of images.

This information is available as a list of DICOM tags (editable by administrator profile only) by clicking on **DICOM Info** item in **Options** menu.



Tag	Description	VR	Size	Value
(000	roup Length	UL	4	178
(000	le Meta Information Version	OB	2	00 01
(000	Media Storage SOP Class UID	UI	26	1.2.840.10008.5.1.4.1.1.4
(0002,0003)	Media Storage SOP Instance UID	UI	48	1.2.250.1.46.1818658683.20060827172111.154908578
(0002,0010)	Transfer Syntax UID	UI	22	1.2.840.10008.1.2.4.70
(0002,0012)	Implementation Class UID	UI	14	1.2.250.1.46.1
(0002,0013)	Implementation Version Name	SH	6	8_3_3
(0002,0016)	Source Application Entity Title	AE	0	
(0008,0005)	Specific Character Set	CS	10	ISO_IR 100
(0008,0008)	Image Type	CS	22	ORIGINAL\PRIMARY\OTHER
(0008,0016)	SOP Class UID	UI	26	1.2.840.10008.5.1.4.1.1.4
(0008,0018)	SOP Instance UID	UI	48	1.2.250.1.46.1818658683.20060827172111.154908578
(0008,0020)	Study Date	DA	8	20060827
(0008,0021)	Series Date	DA	8	20060827
(0008,0022)	Acquisition Date	DA	8	20050503
(0008,0023)	Content Date	DA	8	20050503
(0008,0030)	Study Time	TM	6	172013
(0008,0031)	Series Time	TM	6	172013
(0008,0032)	Acquisition Time	TM	6	113605
(0008,0033)	Content Time	TM	6	113605
(0008,0050)	Accession Number	SH	0	
(0008,0060)	Modality	CS	2	MR
(0008,0070)	Manufacturer	LO	18	GE MEDICAL SYSTEMS
(0008,0080)	Institution Name	LO	30	CENTRE HOSPITALIER LUXEMBOURG
(0008,0090)	Referring Physician Name	PN	0	
(0008,1010)	Station Name	SH	6	GEMSOW
(0008,1030)	Study Description	LO	0	
(0008,103E)	Series Description	LO	0	
(0008,1050)	Performing Physician's Name	PN	0	
(0008,1060)	Name of Physician(s) Reading Study	PN	2	^
(0008,1070)	Operator's Name	PN	10	03/05/2005
(0008,1090)	Manufacturer's Model Name	LO	12	SIGNA EXCITE
(0008,1110)	Referenced Study Sequence	SQ		
(FFFE,E000)	-- Item --			
(0008,1150)	Referenced SOP Class UID	UI	24	1.2.840.10008.3.1.2.3.1
(0008,1155)	Referenced SOP Instance UID	UI	52	1.2.124.113532.193.168.70.22.20050413.94407.3707314
(FFFE,E00D)	-- Item Delimitation --		0	
(FFFE,E00D)	-- Sequence Delimitation --		0	
(0008,1111)	Referenced Study Component Sequence	SQ	102	

WARNING: If user selects another image when a DICOM tag dump is already performed for a first selected image, the DICOM information contained in the DICOM tag is not consistent anymore.

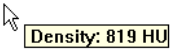
Instruction : User must close the "DICOM Info" dump before selecting another image.

- **DICOM overlays**

This item has an ON/OFF status, depending if you want to show or temporarily hide DICOM overlays (special graphics added by modality) on images.

If “Display DICOM information on the side opposite the member” is enabled in Options > User preferences > Image > Display Options, application will attempt to prevent image demographics from overlapping image data.

- **Density pointer**



This item has an ON/OFF status, depending if you want to show or hide a tooltip on the side of the mouse pointer, giving you image density under the pointer.

WARNING: **Pixel density value and unit are read from the original DICOM data and are not modified by any SE Client image processing when displayed.**

- **Copy**

This item copies selected image in the clipboard, so image can be pasted in third party software.

This function is useful when you want to copy and paste an image in a report or a presentation.

- **Central positioning**

If you have moved them with Panning tool, this item re-centers all images of the series in their window.

- **Close**

This item closes selected image. It is equivalent to click the little cross at the top right corner of image.

- **Delete**

Administrators may use this option to permanently delete an object or group of objects from the database.

To avoid accidental deletions, application will prompt you for confirmation. By default, this option is only available to administrative users.

- **Close Series**

This item closes selected series.

- **Properties**

This item displays select image properties that are stored in the database.

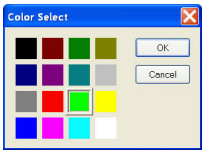
- **Save image presentation**

You are able to create a Greyscale Softcopy Presentation State (GSPS), preserving presentation changes to the image for later use by clicking the **Save Image Presentation to GSPS** button in the main toolbar.

The ability to create a GSPS is linked to a preference that must be granted by an administrator.

- **Measurement contextual menu**

When a measurement is finished, user can move the measurement draw, delete it (and results too) or edit the color thanks to the following contextual menu which can be displayed with a right click on the measurement draw.



When a color is selected and applied, the measurement draw color will change but the results color too. This functionality is especially useful when a lot of measurements have been performed on the same image.

Configuring the image area

- Set the presentation of images
- Set the appearance of tools

Set the presentation of images

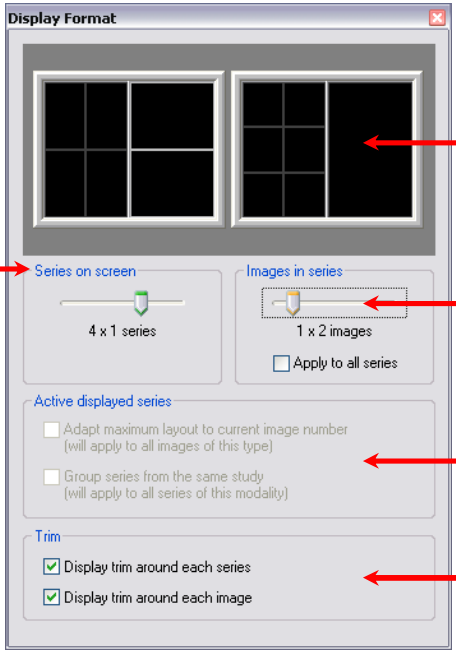
The way **SE Client** handles display of images (number of simultaneous series on screen, number of images per series, images layout) is set by the configuration defined in “Display Format” control panel.

When installing **SE Client**, display format comes with a default configuration that should fit most of sites without needing any changes. Nevertheless, it can happen that you need to adjust display format for particular needs.

SE Client can handle up to two monitors for images display.

- **Display format control panel**

  To open “Display Format” control panel, click the “Display Format” button of the main toolbar, or press **<F3>** on the keyboard.


Display Format
Series on screen
4 x 1 series
Images in series
1 x 2 images
Apply to all series
Active displayed series
Adapt maximum layout to current image number
(will apply to all images of this type)
Group series from the same study
(will apply to all series of this modality)
Trim
Display trim around each series
Display trim around each image
Screen appearance, according to your configuration below
Total number of series you want on screens
Number of images in selected series
Parameters for currently displayed images
Parameters for image and series separators

This control panel can be open at any time, to adjust image display to a particular need or situation, even when some images are already opened.

Screen appearance

The top part of control panel presents your screen as it is going to appear, according to the parameters you defined below.

Series on screen

This slider defines how many series you want to display simultaneously, from one to four per screen. The screen is always split vertically, that is, the series are always placed side by side.

WARNING: Administrator can enable the display of several series from different patient but it becomes his own responsibility (disabled by default). This option is risky because user could compare different patient's series and think it is the same one.

Images in series

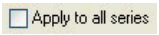
This slider defines the number of images you want to display, for currently selected series.

After defining with previous slider how many series places you want on screen, you then configure how many images each series place will display. Each series place will display a certain number of divisions for images, and this number can be different for each series.

To adjust the number of images for a series

1. Select the series by clicking it in the screen appearance area (selected series frame will turn **light gray**, unselected series frames will turn **dark gray**),
2. Adjust the **Images in series** slider to the desired amount and see how it looks in the screen appearance at the top.

Example: In the screen copy above, we chose to display two series simultaneously on the screen, one on the left and one on the right. In the series displayed on the left, we want two images, in the one on the right we want six images.



If you want all series on screen to display always the same number of images, select the **Apply to all series** checkbox.

*Note: You must tick the **Apply to all series** checkbox before adjusting the **Image in series** slider.*

Active displayed series

This zone presents two checkboxes to tune display behavior depending on image type.

Before adjusting these parameters, you first need to display some images of a particular modality. If no images are displayed, these checkboxes are grayed out.

Adapt maximum layout to current image number

When you check this box, the number of displayed images in a series automatically adapts to the number of opened images, with a maximum to what is set with slider “Images in Series”.

If you don’t check this box, the number of image divisions in a series is fixed. Because of this, if you open fewer images in series than the number of divisions, the remaining divisions will stay black. By checking this box, the number of divisions is automatically adapted, but with a maximum value defined by slider “Images in Series”.

*Example: If you set number of images in a series to 6 with slider “Images in series” and don’t check box “Adapt maximum layout to current image number”, whatever the number of images you open, **SE Client** will always display 6 divisions in series.*

If you set number of images in a series to 6 with slider “Images in series” and check box “Adapt maximum layout to current image number”, the number of divisions will depend on the number of images you open. If you open 1 image the number of divisions will be 1, if you open 2 images the number of divisions will be 2, if you open 3 or 4 images the

number of divisions will be 4, and if you open 5 images or more the number of divisions will be locked to 6.

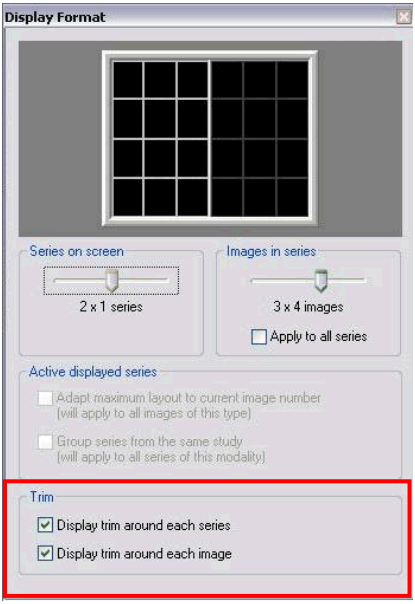
Group series from the same study

When you check this box, series of the same modality and from the same study, are displayed together on screen as if they were all from the same series.

This option is convenient for series having only one image (like CR series), because it allows to setup the screen for only one series but to display several.

Show / Hide image separator (trims)

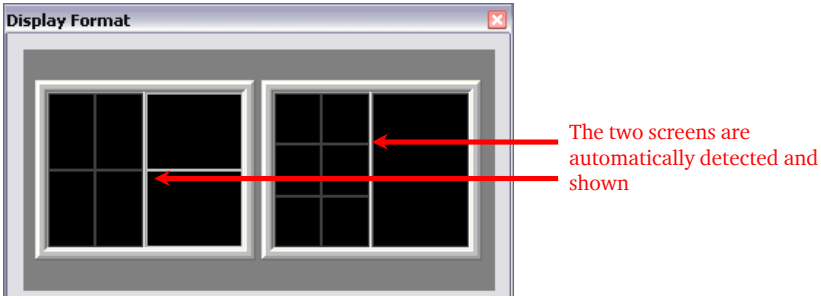
Image separator (trims) can be shown or hidden according to user preferences. To hide or display trims, click on the display format icon (or press <F3> key) and select/unselect the options of the Trim section.


Display Format
Series on screen
2 x 1 series
Images in series
3 x 4 images
Apply to all series
Active displayed series
Adapt maximum layout to current image number
(will apply to all images of this type)
Group series from the same study
(will apply to all series of this modality)
Trim
Display trim around each series
Display trim around each image

Configuration with two monitors

SE Client workstation can handle up to two monitors.

When two monitors are installed, Display Format control panel automatically adapts to display two monitors instead of one, as shown below.



Configuration of the control panel is the same as for one monitor (see paragraph **Display format control panel**). You select how many series you want to be displayed simultaneously, and the number of images per series.
The only difference in configuration is that when you select to display only one series, the minimum number of images in it is two instead of one (to avoid an image to be displayed across both monitors).

Caution: In order for **SE Client** display to work properly with two monitors, both monitors must be setup with the same resolution and orientation in Microsoft® Windows® graphic adapter's settings.

WARNING: **Different screen calibration can be risky for diagnosis purpose.**

Note: Dual monitor support can be done with two distinct graphic adapters or with only one supporting two monitors. Display orientation can be portrait or landscape.

Display layout toolbar

The display layout toolbar allows a quick access to predefined layout configurations.

By clicking on one of the monitor icon, the number of displayable series is changed.

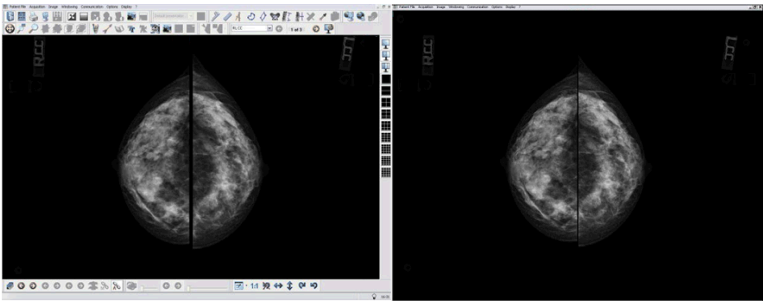
In a one monitor configuration, up to 4 series can be displayed simultaneously.

In a two monitors configuration, up to 6 series can be simultaneously.

By clicking on one of the black screen icon, the number of displayable images within the selected series panel is changed.

Full screen mode

Toolbars can be shown/hidden depending on user preferences. Users can hide toolbars by selecting the **Full screen** item of the **Display** menu, or by pressing **<F11>** key.



Standard mode (left) – Full screen mode (right)

- **Stack mode indication**

When several images are stacked in one series panel, a specific icon is displayed on the top left corner of the panel area.

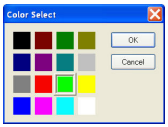
WARNING: By missing the “stack mode” icon, images of a series could remain unseen.

Set the appearance of tools

SE Client allows you to determine the on screen appearance of many of the tools you may use on a daily basis. Through the application, this is completed by customizing the use of colour; therefore allowing you to determine the nature of something on screen by familiarity with the colour.

- Colors for annotations

Annotations



You may select customized colours for drawings, arrows and text. Select Options > User Preferences. Select Image and choose the colour that you would like to use.

An administrator may also set default behaviour by performing the same configuration after selecting Options > Default preferences.

Measurements

You may select customized colors for angles, segments, ellipses, splines, and for the orthopaedics tools. Select Options > User Preferences. Select Measurements and choose the colour that you would like to use.

An administrator may also set default behaviour by performing the same configuration after selecting Options > Default preferences.

Magnifier

You may select customized colours for the zoomed magnifier window. Select Options > User Preferences. Select Visualization and choose the colour that you would like to use.

Note: An administrator may also set default behaviour by performing the same configuration after selecting Options > Default preferences.

Acquiring Images

- DICOM reception
- Secondary capture acquisition

DICOM reception

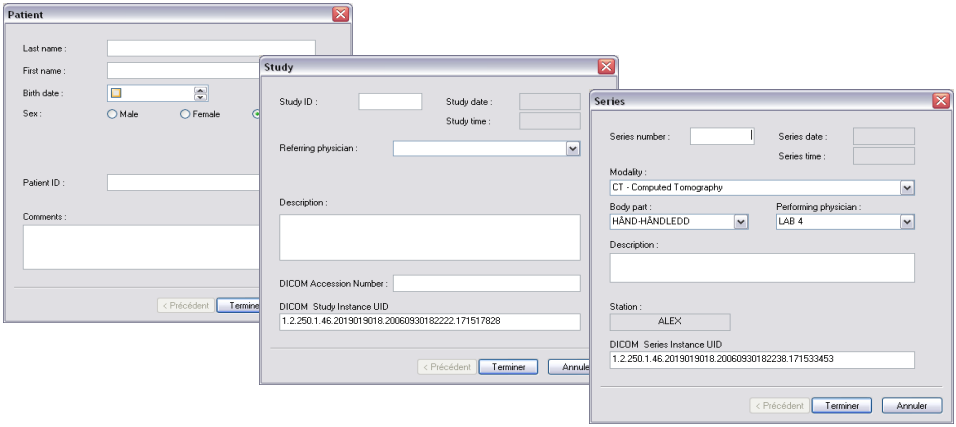
As soon as **SE Client** is started, it can receive DICOM images pushed from a remote DICOM workstation.
In order for **SE Client** to accept incoming DICOM images from a remote workstation, this workstation must be registered in **SE Client** directory, and **SE Client** must be registered in the remote station directory (see section **The communication directory** to learn how to register a remote DICOM workstation in **SE Client** directory. To register **SE Client** in the remote station directory, see the remote station vendor documentation).

When receiving images through a DICOM connection, everything is done automatically. **SE Client** receives DICOM images in the background, retrieves **patient**, **study** and **series** information, creates all necessary patient folder hierarchy in its main database, and then puts received images inside. All new items then appear automatically in the list of Image Browser.

WARNING: application may be configured to manage storage space by removing older images that are least likely to be needed again. It is important to ensure that storage is dedicated to images; otherwise, application may prematurely remove images due to limited storage space.

Secondary capture acquisition

Secondary capture image acquisition is done in currently selected series. Instead of using an existing series to acquire into, if you prefer to create a new empty patient folder to acquire, use the “New Folder” button in the toolbar. You will go through three dialogs, first patient, then study, then series, where you will enter folder information.



Retrieving images from a server

- Presentation
- Querying a remote DICOM server
- Retrieving series from a remote DICOM server

Presentation

As a DICOM workstation, **SE Client** supports DICOM Query and Retrieve (Q/R) User and Provider services.

Practically, this simply means that:

Q/R User
SE Client is able to query any DICOM server (supporting Q/R Provider service) with some search criteria, display the list of studies complying criteria, and retrieve (or import) some series from this server in its main database.

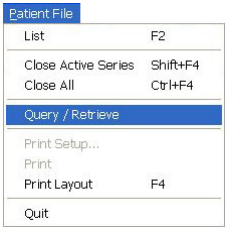
Q/R Provider
Any DICOM workstation (supporting Q/R User service) is able to query **SE Client** main database with some search criteria and retrieve some series from this database.

Instruction: To be able to use Q/R User or Provider services in **SE Client**, the remote station must be declared in **SE Client** communication directory (see paragraph **The communication directory** for details on the communication directory), and **SE Client** must be as well declared on the remote station.
These declarations on both stations introduce an access control to your database. It gives access permissions to your database only to stations declared in the directory. This is crossover verification between stations.

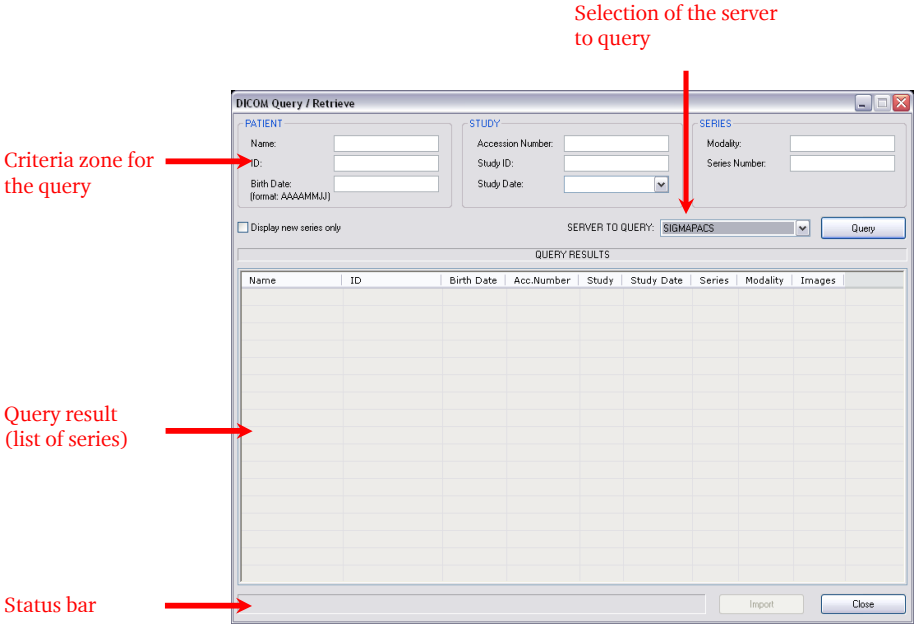
Querying a remote DICOM server

To open the Query / Retrieve window, select **Query/Retrieve** item in **Patient File** menu.

This window is divided in two main zones:



- at the top, the section where you enter the query criteria, select the server to query, and send the query command,
- at the bottom, the result of the last query and the retrieve (import) command.

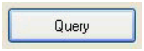


At the top of the window, you find the three sections patient, studies and series, allowing you to give some search criteria on each level of the DICOM hierarchy (patient's name, study date, series modality…).

You can enter one or several criteria, or you can also leave all this fields blank. In this case, no restriction will be send with the query and you will get all series available on remote server.

WARNING: To minimize needed resources and network traffic, it can happen that some servers do not accept queries without any criteria. Diagnosis could be delayed.

Instruction: In this case, specify at least one criterion, for example a study date or a patient name.



Once you have entered criteria, select the remote server in the drop-list and click the "Query" button. After a few seconds, you will get the result of the query in the list below. If an error occurred, you can read it in the status bar.

Note : In Q/R window, all dates must be entered in the form "yyyymmdd". Also, character "^" is used as a separator between patient's first and last names.

*Note: Wild card * matching is interpreted only for Patient Name and Patient ID in Query / Retrieve Dialog. For other fields (Accession Number, Study ID, Modality, Series Number, Fields of type date-time), wild card is deleted from the specified value.*

Before sending a query, check Display new series only if you want **SE Client** to display only series that you don't already have in your main database. This reduces the size of the results list, and avoids retrieving series you already have in your database.

If box "Display new series only" is not checked, and some series of the query result are already in your main database, you will see a yellow database icon at the beginning of corresponding line.

Retrieving series from a remote DICOM server

Once you have sent a query and obtained a results list of series, you can select items in the list and retrieve (import) them in your main database.

To retrieve series, select them in the list, then click the “Import” button.

*Note: Importing series can take from a few seconds to several minutes, depending on the amount of data to transfer. The import process is a background task that doesn’t lock **SE Client**, so you can minimize the Query / Retrieve window and continue working in parallel.*

WARNING: **If you retrieve (import) a series you already have in your database, it will replace the one in your database with the one you retrieve.**

Instruction: When installing the system user/services must check the printing pipeline implementation and configuration, then perform printing tests.

Print Layout

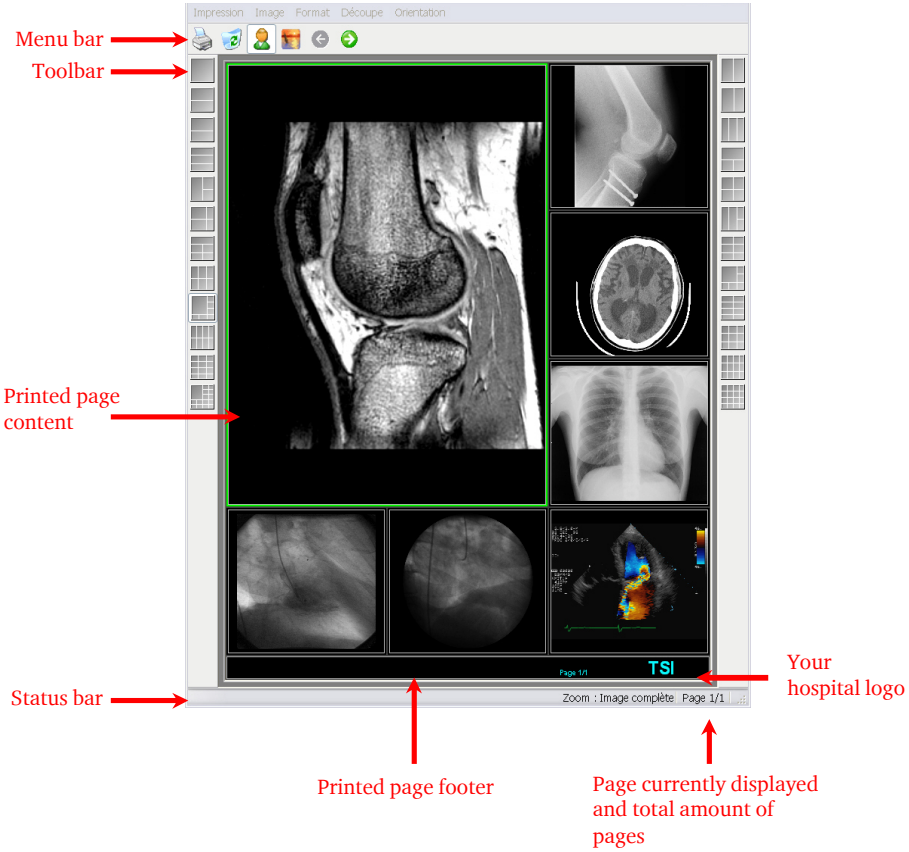
- Presentation
- Manual composition
- The footer
- The toolbar
- The status bar
- Print layout menus

Presentation

The print layout is a powerful ***WYSIWYG*** (What You See Is What You Get) tool to compose pages you want to print on medical film printers or on desktop paper printers.

Any kind of image (from any image modality, monochrome or color) can be placed in the print layout.

To open the print layout window, click this button or press **<F4>** on the keyboard.



This Window is totally independent and can be placed, moved, or resized to what you prefer. It has its own title bar, close box, toolbar and status bar, working the same way as for application window.

The content of the print layout is split into one or several independent “image cells”, depending on the chosen layout (image disposition). Each cell can welcome one image. **SE Client** will then justify the images at the left or right depending on laterality.

You compose the content of the print layout by placing images, or portions of images, manually in image cells of the layout.

Manual composition

You compose the content of the print layout by placing images, or portions of images, manually in image cells of the layout.

Before loading an image in the layout, you must first choose a destination printer and a page format, and then select a particular layout.

- **Image loading**

  To load an image in an image cell of the layout, you have several possibilities to your convenience.

  Drag & drop from display

  Open an image on display, while pressing **<CTRL>**, drag an image to a destination cell of the print layout.

  The image will be loaded in the destination cell of the print layout.

  Double-click from display

  If you have selected option **Load With Double-click** in **Image** menu of Print Layout window (see paragraph **Image Menu**), you can directly load an image from the screen to the print layout.

  Drag & drop from the Image Browser

  From the Image Browser, you can select one or several image thumbnails, or even a whole series, click it and keep the mouse button down, drag on top of a destination cell of the print layout, then release the mouse button. The image or group of image will be loaded in the layout, starting at the destination cell.

  SE Client will automatically create the number of needed pages depending of current layout, to place all images in the layout.

Send to Print Layout from the Image Browser

SE Client allows you to send all images in a study to a print layout by right clicking the study in the **Tree View** and clicking **Send to Print Layout**.

Note: There are additional constraints when loading Mammography images in a print layout. It is only permitted to have one 'For Presentation' image per film in True Size mode. 'For Processing' images are not permitted. SE Client will also align the images in such a way as to minimize the border of the film.

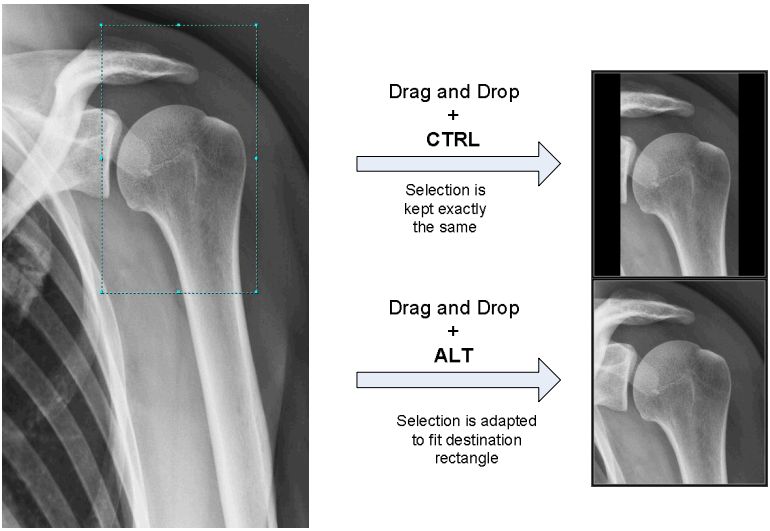
Loading a portion of image

To load only a portion of an image, open the image, select a portion of it using the "Selection" tool, then drag & drop from image with **<CTRL>** key pressed (or double click, if activated) to a destination cell of the print layout.

To load a whole image instead of only a portion, cancel the selection on image.

*Note: When a selection exists on a displayed image, you can instruct the **SE Client** to automatically adapt the selection dimensions to exactly match the destination cell in the print layout. This way, the space in the print layout is used optimally.*

*To do this, press the **<Alt>** key instead of **<Ctrl>** when doing the drag & drop from display to print layout.*



WARNING: When printing Mammography images, it is important to note that you may only print one image per film, the print must be true size, and all images within a study must be printed.

The footer

The footer is the low part of the print layout, showing some logos and information about the print layout content.

Instruction: The right logo can be personalized to be your site logo. Ask your administrator or service contact to modify logo.

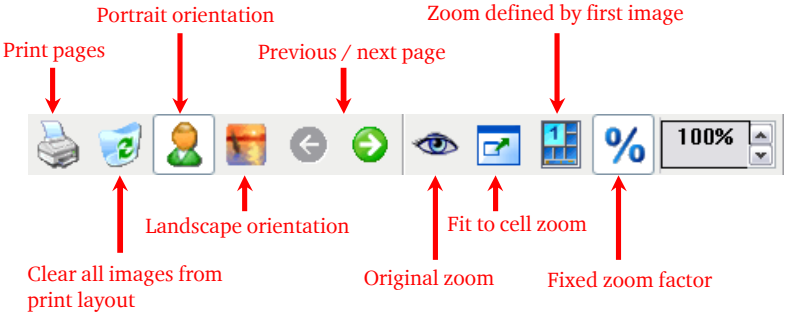
SE Client automatically fills the information in the footer when you place images in the layout (patient's name, patient's birth date, study date, site name…). If you put images from different patients, some fields in the footer stay blank (patient information), and you can edit them manually.

- **Editing the content of the footer**

  To edit any field in the footer to change its text, just double-click the text or anywhere in the footer. You will get a white edit zone where you can enter the text you want, then validate by pressing <**Enter**>.

The toolbar

The toolbar of the print layout window is composed of icons and controls that give you a quick access to main functions in this window.



- **Print pages**

  This button is equivalent to item **Print**… in the **Print** menu.

  Once you have composed the page or pages of the print layout, use this button to start printing. You will have the choice to print only current page, or all pages.

- **Clear all images**

  This button is equivalent to item **Clear All** in the **Print** menu.

  Use this button to clear all images in all pages of the print layout, to go back to a blank layout.

- **Portrait orientation**

  This button is equivalent to item **Portrait** in the **Orientation** menu.

  Use this button to select a portrait orientation (vertical) for your pages.

- **Landscape orientation**

  This button is equivalent to item **Landscape** in **Orientation** menu.

Use this button to select a landscape orientation (horizontal) for your pages.

- **Zoom factors**

These four buttons are equivalent to item **Zoom** in **Image** menu.

Use one of this buttons to select a zoom factor to your pages.

Note: To be applied, Zoom factors must be setup before sending images to the print layout.

Note: When displayed image is not calibrated, there is neither measurement scale nor zoom value displayed on print layout.

The status bar

The status bar at the bottom of the print layout window gives you some information about the layout configuration.

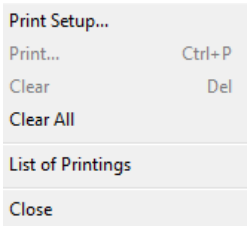
At the far right, it gives you the total number of pages in the layout, and the current page.

In the middle, you will see the current value of image placement zoom (current value checked in item **Zoom** of menu **Image**.

Print layout menus

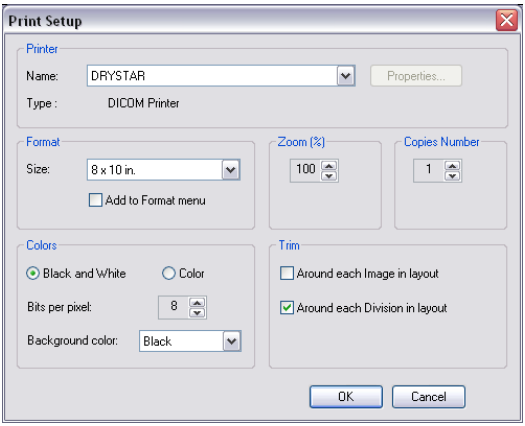
Print menu

This menu presents different items to configure or setup the prints of the print layout.



Print Setup…

This item allows selecting the destination printer (DICOM or desktop printer) where you want to print, and adjust its printing parameters.



In the **Printer** section, a drop-list presents all the DICOM printers defined in your directory (see section **The communication directory**), and also the desktop printers installed on your computer (Microsoft® Windows® compatible printers).

Note: Printing on desktop printers is subject to license policy.

Select the printer on which you want all future prints to be done (current printer). The current printer can be changed at any time.

The **Format** section gives a list of all available film formats for current printer. This option is only available for DICOM printers. Different formats appearing here are the ones defined for this printer in the directory (see section **The communication directory**).

Note: For each film format, check Add to format menu box if you want selected film format to appear in Format menu, making switch between formats easier and quicker.

The **Zoom** section, allows you to specify a fixed zoom value for all images placed in the print layout. This value will appear in item **Fixed zoom** of submenu **Zoom** in **Image** menu, and in the status bar .

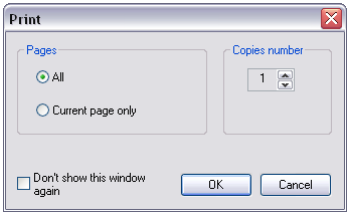
With **Copies number** you can give a default copies number to print for each page of the layout. You can also adjust number of copies for each print when using the **Print**… option (see this section for details on the Print… option).

In the **Colors** section you give the parameters of the current printer.

The **Trim** section gives you the possibility to have a white trim drawn around each printed image, around each image cell of the layout, or both.

Print…

Use this item to print the page or pages you prepared to current printer.



In the dialog that pops, select if you want to print only current displayed page or all pages. You can also adjust the number of copies to print (to change default number of copies, see the “Print Setup…” section above).

Clear

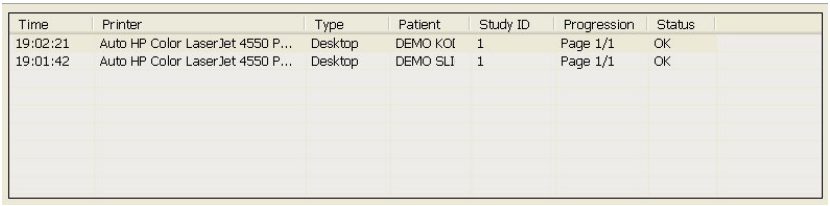
Use this option to remove image in currently selected image cell in the layout (the one surrounded by a green frame).

Clear all images

Use this item to clear all images in all pages of the print layout, to go back to a blank layout.

List of Printings

This option displays a list of prints you have done, with the result status of printing (Ok or not).



Time	Printer	Type	Patient	Study ID	Progression	Status
19:02:21	Auto HP Color LaserJet 4550 P...	Desktop	DEMO KO(	1	Page 1/1	OK
19:01:42	Auto HP Color LaserJet 4550 P...	Desktop	DEMO SLI	1	Page 1/1	OK

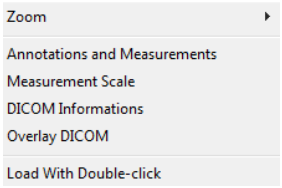
Close

This option closes the print layout.

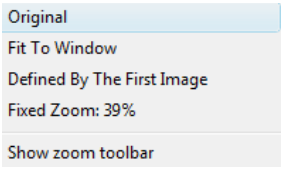
Even if you close it, you will not lose the composition you did in the layout (the images you already put), and you will find everything untouched if you reopen it.

Image menu

This menu presents different items to setup image presentation and image loading mode in the print layout.



Zoom



Original will load image with the same zoom as the one applied on screen for this image.

Fit to Window will load image and adjust the zoom to make it fit in destination layout cell (keeping proportion).

Fixed zoom will load image with the fixed zoom defined in "Print Setup" (see section **Print Menu** to adjust this fixed zoom value)

Defined by the First Image will load all images with the same zoom as the one applied when loading the first image in the layout.

Show zoom toolbar will allow user to display the zoom toolbar or not.

Annotations and Measurements

Check this option if you want **SE Client** to display annotations and measurements (distances, angles…) present on images on screen, on images in the layout.

Measurements Scale

Check this option if you want **SE Client** to display the measurement scale (calibration) on images in the layout.

DICOM Information

Check this option if you want **SE Client** to display DICOM information (patient name, study date…) in the corners of images in the layout.

DICOM Overlays

Check this option if you want **SE Client** to display DICOM overlays (graphics…) on images in the layout.

Apply Modality, VOI or Presentation LUT

Check this option if you want **SE Client** to apply the specific DICOM Look Up Tables (if present in original images) on images in the layout.

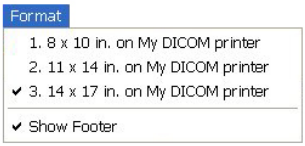
Load With Double-click

Check this option if you want to use double-click on a displayed image to load it in the layout. Image load is done in the last empty cell of the layout.

WARNING: Checking this option will prevent you to use double-click for any other purposes in SE Client, including seeing an image full screen, which is the default action of double-click.

Format menu

This menu allows to quickly access a particular film format on a given printer.



Film format on a printer

The content of this menu is variable. It depends on what you have selected to add to this menu in **Print Setup…** dialog box (see section Print Menu for details on **Print Setup…**).

Film formats you have checked in **Print Setup…** dialog box, will appear in this, giving you an easy and quick way to switch between film formats and printers.

The index displayed at the beginning of each item (1, 2, 3…) is the number to use in automatic printing mode to choose a particular film format and printer.

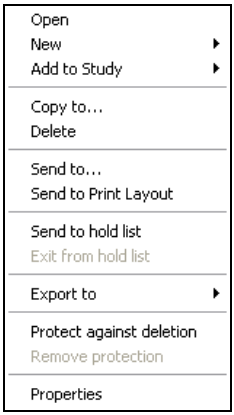
Show Footer

Check this option if you want **SE Client** to display the page footer (containing patient name, study date, your hospital logo…) on each printed page.

Orientation menu

This menu allows choosing between orientation portrait (vertical) or landscape (horizontal) for the print layout pages.

SE Client allows putting all images of a study in the print layout by the right click menu or **<CTRL+L>** shortcut.



Note: The following behaviour is specific to mammography studies within SE Client:

- All images are put in the print layout except 'For Processing' or Anamnesis ones.

- Print Layout is automatically in 'Portrait' mode, True Size (100% fixed zoom mode) and layout 1 x 1 (one image per film).

- All images are automatically justified depending on their laterality in such a way that the distance to the border of the film is minimized.

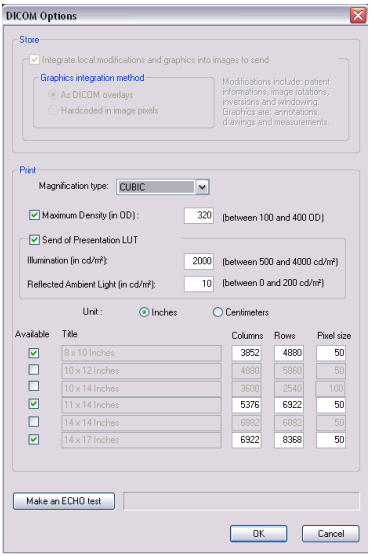
Print Layout is automatically displayed (if not ever displayed) and SE Client is ready to print.

Note: application will only print films which contain at least one image.

SE Client allows to send:

- Magnification type.
- Maximum Density in OD.
- Presentation LUT with:
- Illumination (in cd/m²)
- Reflected Ambient light (in cd/m²)

Note: For additional information please refer to the 'DICOM Options' dialog box.Available foraccounts with Administrator privileges only.


DICOM Options
Store
Integrate local modifications and graphics into images to send
Graphics integration method
As DICOM overlays
Hardcoded in image pixels
Modifications include: patient informations, image rotations, inversions and windowing. Graphics are: annotations, drawings and measurements.
Print
Magnification type: CUBIC
Maximum Density (in OD): 320 (between 100 and 400 OD)
Send of Presentation LUT
Illumination (in cd/m²): 2000 (between 500 and 4000 cd/m²)
Reflected Ambient Light (in cd/m²): 10 (between 0 and 200 cd/m²)
Unit : Inches Centimeters
Available Title Columns Rows Pixel size
8 x 10 Inches 3852 4880 50
10 x 12 Inches 4880 5860 50
10 x 14 Inches 3600 2540 100
11 x 14 Inches 5376 6922 50
14 x 14 Inches 6882 6882 50
14 x 17 Inches 6922 8368 50
Make an ECHO test
OK
Cancel

Note : You can choose between 2 units for print formats: inches or centimeters.

Communication

Communication is a key feature of **SE Client**. The workstation is able to send and receive images in many different ways, and do some cooperative work with a correspondent.

Any remote workstation which will communicate with **SE Client** must be registered in **SE Client** communication directory.

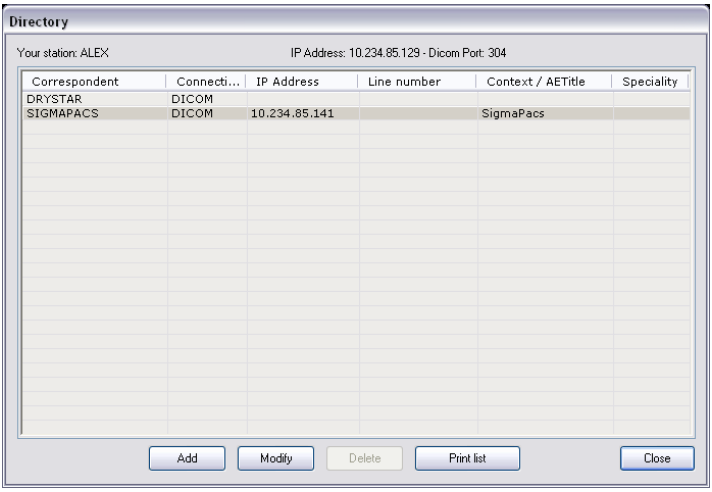
- The communication directory
- TCP/IP Configuration
- Configuring ‘send to e-mail’
- How to send studies

The communication directory

Instruction: The communication directory is available for accounts with Administrator privileges only. Please, contact your administrator or service people to declare new correspondents in this application communication directory.

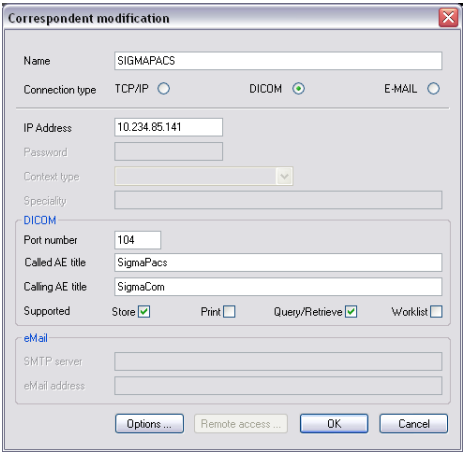
The communication directory is at the heart of communications in **SE Client**. It registers and maintains parameters of all remote workstations that will communicate with **SE Client**, whatever the communication type is.

To open the directory, choose item **Directory** in **Communication** menu.



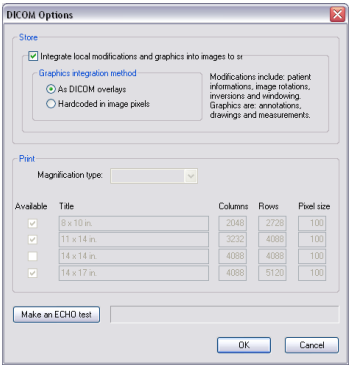
Registering a DICOM workstation

To create a new DICOM workstation in the directory, click the **Add** button.



1. Give a name for this workstation in the directory (this name is free; it will not be used in DICOM communications, just locally for you).
2. Select the DICOM connection type.
3. Give the IP address, listening port number, and the AE Titles to use for the remote workstation.
4. Check the boxes corresponding to the DICOM services supported by the remote workstation.
5. Click the Options… button.

DICOM Options



1. Select **Integrate local modifications and graphics into images sent**.
2. If you do local changes on images you have received (changes in patient demographics, windowing, adding annotations…) **SE Client** will apply them into the DICOM files before sending them to another destination.
3. You have two ways to integrate graphic modifications:
   - As DICOM overlays,
   - Hard-coded in image pixels.

   Integrating as DICOM overlays is the best option available, because the data in an overlay is stored separately from image pixels and can be displayed over the image. Hard-code graphics in pixels make it impossible to remove them from images afterwards.
   Nevertheless, hard-code graphics in image pixels is more simple and universal, because not all image viewers are able to display DICOM overlays.

WARNING: Loss of information within the image can cause misdiagnosis. Enabling option <Hardcoded in image pixels> is in the responsibility of the user.
When ROI* and/or any annotation are hard coded in the pixels, some relevant information within the image might get lost because the original pixel information is replaced by the ROI/annotation.

4. Choose the best way to integrate graphics, based on your DICOM workstation environment over the network.

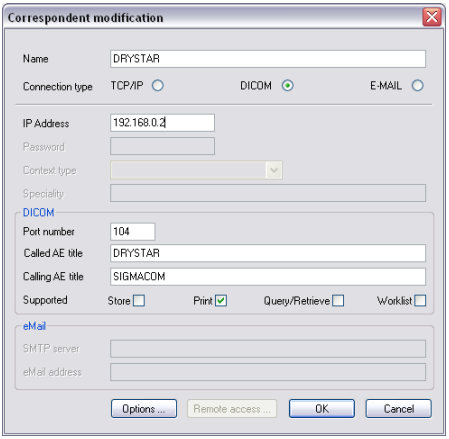
5. Click button **Make an ECHO test**.

This will send a verification DICOM service to the remote workstation, to see if all DICOM parameters are correct.

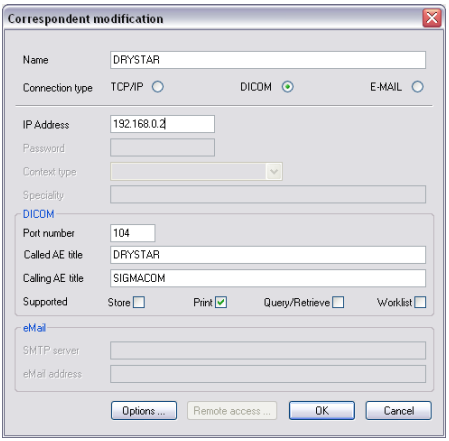
6. If everything is fine (assuming the remote workstation supports the verification DICOM service), you should get the message “OK: Answer received after x seconds” at the right of the button, otherwise the error will be written.

Registering a DICOM printer

1. To create a new DICOM printer in the directory, click the “Add” button.



2. Give a name for this printer in the directory (this name is only a description; it will not be used in DICOM communications, just locally for you).
3. Select the DICOM connection type.
4. Give the IP address, listening port number, and the AE Titles to use for the printer.
5. Check the Print box.
6. Click the Options… button.



7. Depending on the printer capabilities, select a magnification type, then enter the supported film formats values.

8. Click button Make an ECHO test.
9. This will send a verification DICOM service to the printer, to see if all DICOM parameters are correct.
10. If everything is fine (assuming the printer supports the verification DICOM service), you should get the message “OK: Answer received after x seconds” at the right of the button, otherwise the error will be written.

TCP/IP Configurations

Instruction: This functionality is not supported anymore in SE Suite.

Configuring ‘send to e-mail’

Instruction: The communication directory is available for accounts with Administrator privileges only. Please, contact your administrator or service people to declare new correspondents to send emails to.

Presentation

In addition to the DICOM protocol, **SE Client** is able to send studies to an e-mail address.

When sending a study to e-mail, **SE Client** creates an HTML page including patient and study information and images in Jpeg (original dimensions).

WARNING: **No encryption is made by SE Client on the e-mail itself and during e-mail transfer.**

Instructions:

- You must provide security outside **SE Client** on the network you are using in order to protect patient data privacy (example: VPN).

- You must have an SMTP server connected on the same LAN as **SE Client.**

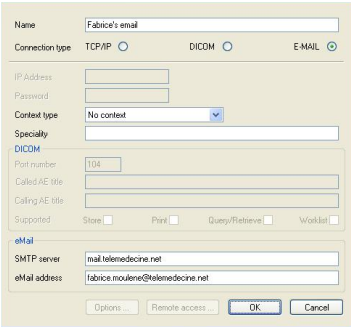
- All images of the study are always converted in JPEG format.

- Email application receiving the mail must support HTML e-mails.

- The email sender must have an email address configured within its user profile in the **SE User Administration Tool**. Please contact your administrator for more information.

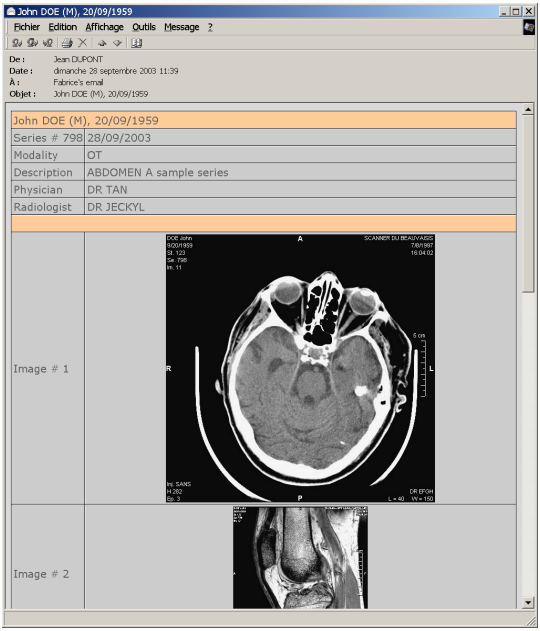
Creating an email recipient

1. In the directory, create a new recipient as follows:



2. Select E-MAIL connection type, give the correspondent e-mail address and the address of your SMTP server, and then click OK.

3. When sending a study to e-mail, here is how the e-mail looks like at the recipient mailer:


John DOE (M), 20/09/1959
Fichier Edition Affichage Outils Message ?
De : Jean DUPONT
Date : dimanche 28 septembre 2003 11:39
A : Fabrice's email
Objet : John DOE (M), 20/09/1959
John DOE (M), 20/09/1959
Series # 798 28/09/2003
Modality OT
Description ABDOMEN A sample series
Physician DR TAN
Radiologist DR JECKYL
Image # 1
Image # 2

How to send studies

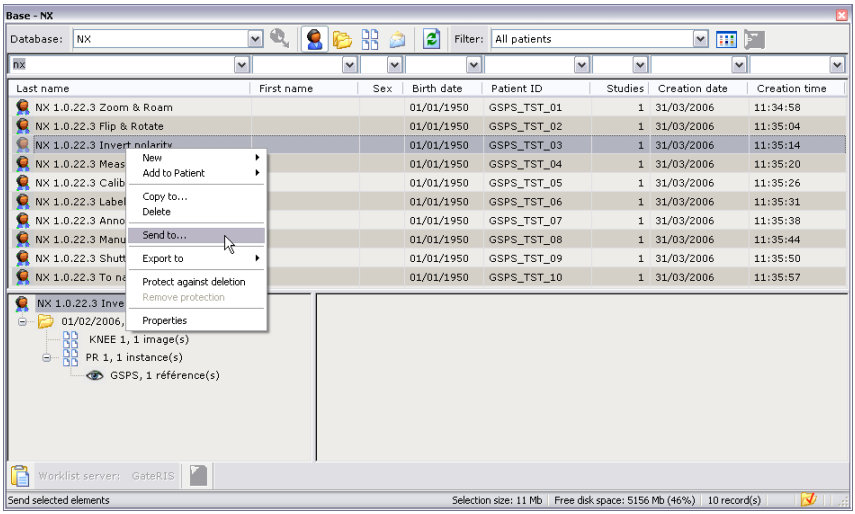
Presentation

Whatever is the type of destination to send to (DICOM or e-mail), the way to send elements is always the same.

Elements to send can be **patients**, **studies** or **series** (you cannot send just an image). You can send one element, or a group of several elements you select.

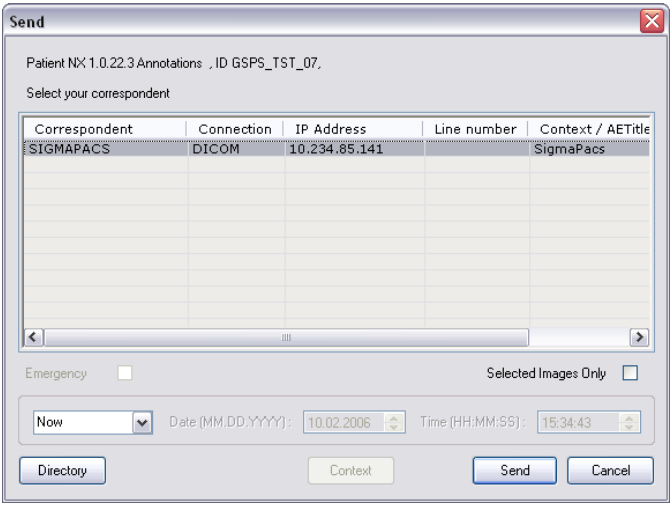
Sending elements

1. Open the **Image Browser** and display the list in presentation mode you wish (patients, studies or series).
2. Select one or several elements in the list, right-click and select item **Send to...**



Note: You can send one or several elements in one time, and you can send them from the list or from the hierarchical tree.

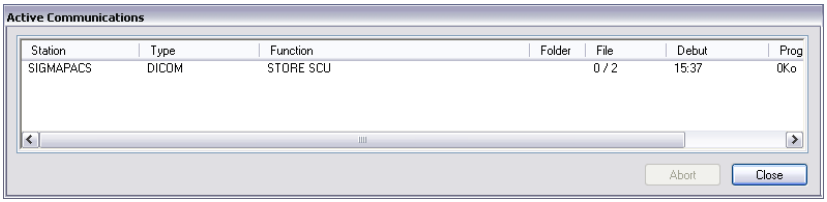
3. You then get the “Send” dialog below; where you select the recipient of the element you want to send (you can send to only one destination at a time).



By default, the drop list at the bottom left says “Now” so the elements are sent just after clicking the Send button. If you want, you can decide to delay sending and program it at a particular date and time (programmed sending are listed in **Send Waiting List**, accessible from the **Communication** menu).

4. Click the Send button, the elements will be sent to the addressee.

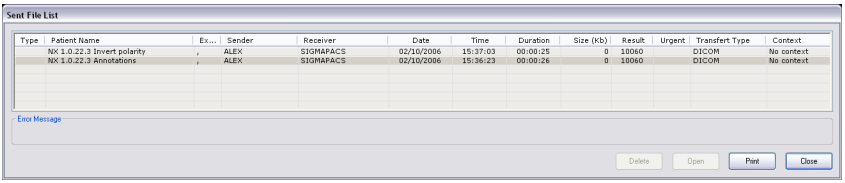
*Note: Before sending, it can be good to open the window of active communications by selecting item Active Communications in **Options** menu. This window can be opened or closed at any time, and shows you any incoming or outgoing communication with **SE Client**, so it is a convenient way to check everything is going fine when sending images.*



Sent and Received file lists

To follow all incoming or outgoing communications, in addition to the "Active Communications" window, **SE Client** keeps a journal (log file) of communications.

Two lists are kept, the "Sent File List" and the "Received file List", both accessible from **Communication** menu.



4 User Preferences

The current chapter contains the following topics:

❑ Starting SE Client Preferences set up

Starting SE Client Preferences set up

A user can define his own application preferences via the **User Preferences** item in **Options** menu. This menu proposes several sections for application customization and the behavior is the same for all of them:

1. Select the section you want to customize (General, Mouse …)
2. Make your changes (check boxes, radio buttons …)
3. Click **Apply** then **Ok** (or **Cancel** if you do not want to save your changes)
4. Modifications will be taken into account even if the application is not restarted.

User can reset the default values of the selected section by clicking **Default.**

*Note: the default values can be modified by an administrator in **Default Preferences** item of **Options** menu.*

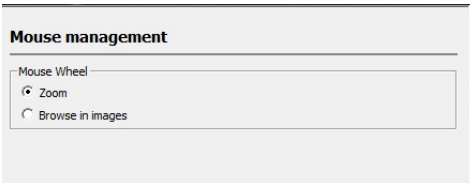
- **General**

SE Client proposes a Startup tutorial. Depending on your preference, select either the “Display at next start” or “Ask at next start” option under the “Start up tutorial” section.

- If you select “Display at next start”, the startup tutorial will be automatically launched at next login (for this user account only).
- If you select “Ask at next start”, a pop-up window will ask you if you want to display the startup tutorial or not (for this user account only).

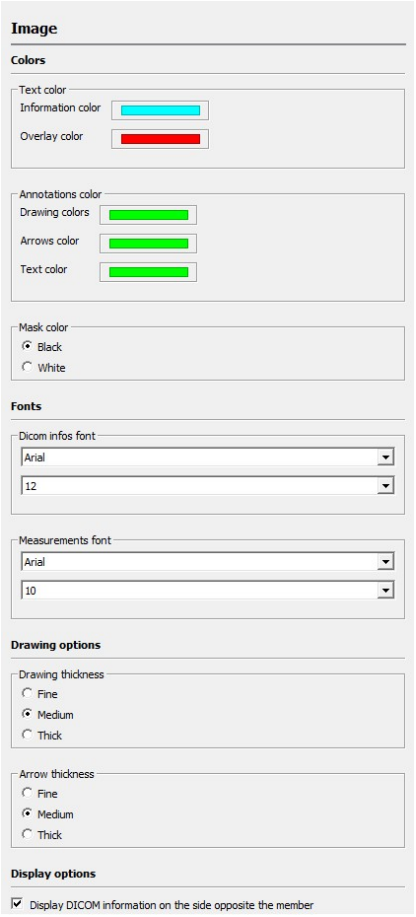
Note: The Startup Tutorial can be displayed if your administrator defined the link in the system settings only.

Mouse



In this section, user can define whether its mouse wheel (when existing) is dedicated to zoom OR browsing through images contained in series.

Image



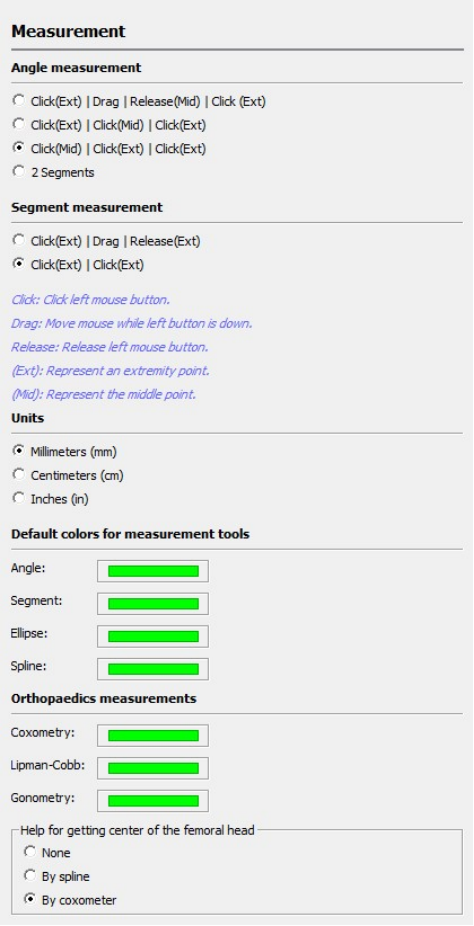
This section is dedicated to information, annotations and drawing rendering.

User can modify the colors of text and annotations but also the font of **DICOM information** and **Measurements results** text strings.

In Drawing options, the Drawings and Arrows thickness can be cutomized.

The Display Options check box allows the display of DICOM information on image on the opposite side of the body part.

Measurement



In this section, user can choose- the way he wants to make measurements

- the measurements unit (mm, cm, in)

- and the measurements colors

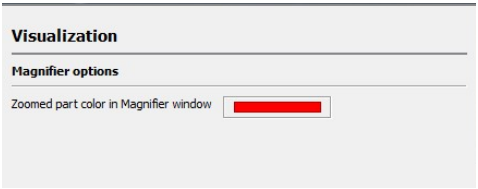
User can select the method to get the center landmark of the femoral head:

- (None) by positioning approximatively the center with a left click,

- (By Spline) by positioning the center of a circle and drawing a circle,

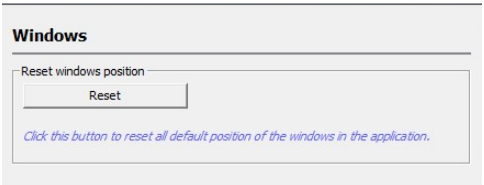
- (By coxometer) with a geometric shape help. User has then to position 4 landmarks (See section Coxometry).

Visualization



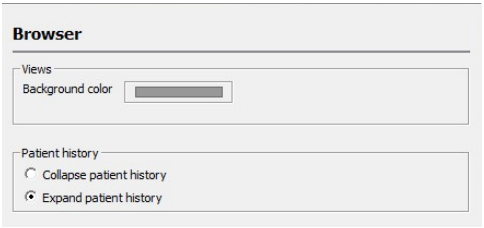
In the visualization section, user can select the color of the square forming the boundary of the zoomed part in magnifier window.

Windows


Windows
Reset windows position
Reset
Click this button to reset all default position of the windows in the application.

It could happen that windows are hidden in the application because of display parameters modification or window resizing. In this case, user can reset their position by clicking **Reset**.

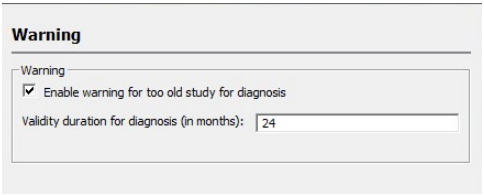
Browser



In **Views**, User can select the color of the Browser window background (a.k.a database window).

In **Patient History**, user can choose the way patients studies/series are dispalyed in tree view part of the browser window (See section **Image Browser**).

Warning



SE Client can warn user via a message window when studies displayed are too old for diagnosis. User can enable this option and specify the validity duration for diagnosis in months. The warning will appear when studies/series/images are older than the validity duration.

5 SE Web Client

The **SE Web Client** is a subset of **the SE Client** application. Therefore the key functionalities and main behavior are similar in the both systems. However, the **SE Web Client** is **limited** and some features are not proposed. This chapter is mainly intended to explain what the **SE Web Client** limitations are.

The current chapter contains the following topics:

❑ Intended Use & Users

❑ Installation & Hardware Requirements

❑ SE Web Client

Intended Use & Users

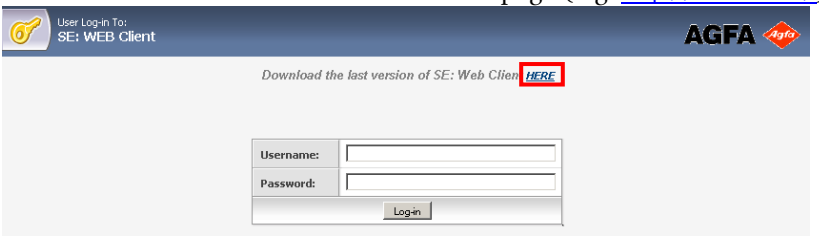
- **SE Web Client Intended Use**
  The **SE Web Client** is a web based DICOM viewer, client of **SE Server**, intended to perform operations relating to the display, review and teleradiology exchange of medical images and patient demographic information. It is intended for use by the physician or medical professionals whenever they require access to medical images and patient demographic information. It is not intended for primary diagnosis.

- **SE Web Client Intended Users**
  SE Web Client is intended to be used by Radiologist, Physician, Technologist, PACS Administrator, General Practitioner or Agfa Service Personnel (or Authorized Service Engineer).

Installation & Hardware Requirements

Installation

1. Connect to the web server home page (e.g. http://webserver/)



2. Click **Here** link to download the last version of the **SE Web Client.**
3. Download the **SEWebClient.exe** file.
4. Once download is finished execute it. Then **SE Web Client** installer window will be displayed.
5. Execute all the steps of the installer until end of installation.
6. Login to the **SE Web Client** with your **User name** and **Password.**

Instruction: the Web Client can be downloaded and executed with Windows administrator privileges only. However, it can be used with Windows Standard User account.

Note: when you log in to the system and if there is a newer version on the web server than the one installed on your machine, the system will detect it and propose you to download the last one.

Minimum Hardware Requirements

The **SE Web Client** runs under Microsoft®:

- Windows® XP SP2 and SP3
- Microsoft Windows® Vista™ Business Edition SP1 32bits

The **SE Web Client** manages one display monitor only.

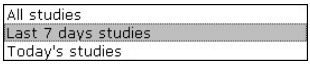
SE Web Client Limitations

- **Image Browser**

The **SE Web Client** browser window toolbar is limited to:

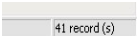
- **Patient view** button to display patient list in list view
- **Study view** button to display study list in list view
- **Refresh** button to update the database window
- And **Filter list** to display a predefined selection of items

Patient's filters



Study's Filters

The **SE Web Client** browser window status bar indicates the number of records existing in the list view.



Note: Multi-selection is not possible on the list view of the browser in SE Web Client.

In the **SE Web Client**, a user is able to apply filtering settings on several columns.

- The filter criteria and their formats are explained in section **List filtering**

It is not possible to filter on all columns. Here is the list of columns that support filtering:

- In Patient view: Name, Birth Date, Creation Date
- In Study view: Name, Study Date

In the **SE Web Client**, a user is able to apply sorting strategies on several columns in ascendant and descendent order, both in Patient and Study views.
Here is the list of columns that support sorting:

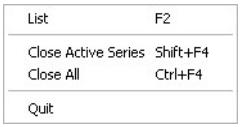
- In Patient view: Name, First Name, Birth Date, Patient ID
- In Study view: Name, First Name, Study Date, Study Time

- **Image Display Area**

Contextual Menus

SE Web Client is limited to the following menus:

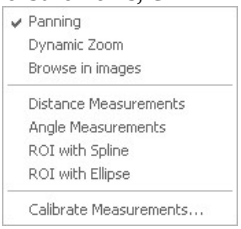
Patient File



In **Patient File** menu, user can:
- Open the browser window
- Close active series (selected series)
- Close all series
- Quit the **SE Web Client** Application

Image

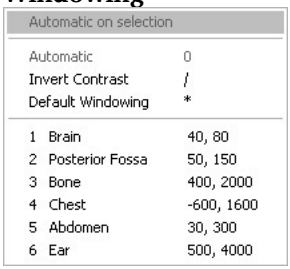
In **Image** menu, user can:
- Open **Tools** submenu to select the tool to be activated for the mouse (Pan, Zoom, Browse, Measurements, Calibration …)



- Open **Zoom** submenu to select a predefined zoom factor to be applied on image
- Open **Zoom** submenu to select a predefined orientation to be applied on image
- Clear all measurements performed during the session
- Display/Hide DICOM information
- Display/Hide DICOM overlays
- Display/Hide slice positions (when possible)

- Display the density pointer next to the mouse arrow
- Switch to previous/next page
- Switch to previous/next series

Windowing



In **Windowing** menu, user can select a windowing to be applied on image (Automatic, Inverted, Default, Predefined) Predefined filters can be applied thanks to accelerators (e.g. key '1' for 'Brain')

?

SE Web Client About box

Toolbars

SE Web Client is limited to the following toolbars, therefore functionalities.

	Panning Use this tool to move image around on screen. This tool is particularly useful when image doesn't fit on screen.
	Dynamic Zoom This tool allows zooming image. A little menu associated with this button gives you access to predefined zoom values.
	Selection This tool selects a portion of image. This selected portion can then be used with several functions (image crop, send to print layout…).
	Distance Measurement Use this tool to measure distances on image. Measured distances are shown on the left side of image.
	Angle Measurement Use this tool to measure angles on image. Measured angles are shown on the left side of image.
	Density pointer Use this tool to show a tool tip on the side of the mouse pointer, giving you image density under the pointer.

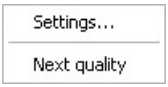
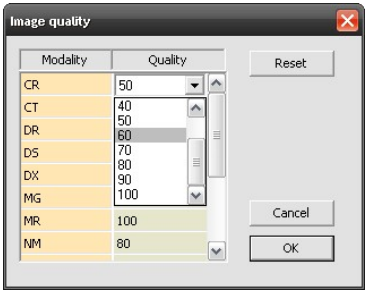
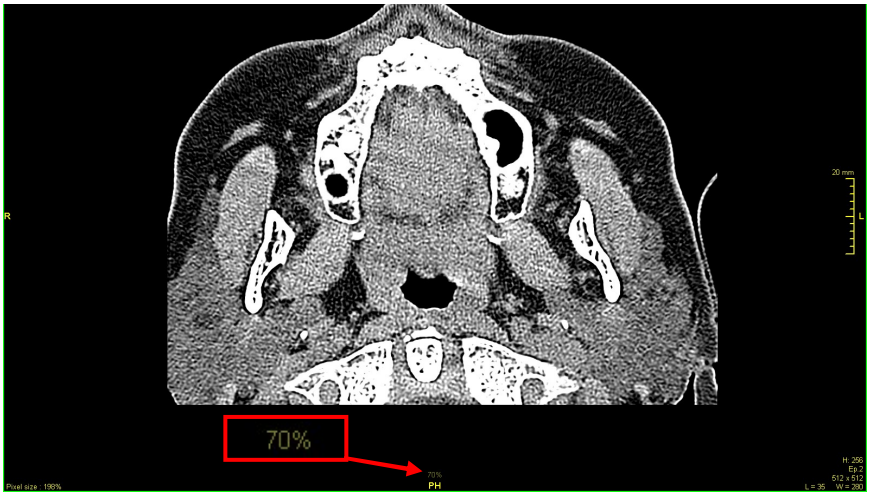


Image Quality

Use this tool to define in **Settings …** menu the compression quality (10/20/30/40/50/60/70/80/90/100%) depending on modality type (CR/CT/DR …) when receiving images from the web server.



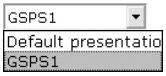
WARNING: The compression factor is displayed on image (middle of image bottom). User is warned about image quality thanks to color rules: Red (from 10% to 60%), Yellow (from 70% to 90%), Green (100%).



WARNING: An icon (⃠) is displayed in the top left corner of an image if SE Client detects that the image is lossy compressed. Lossy compressed images are much smaller and enable fast downloads, but are not recommended for diagnosis due to the nature of the compression.

	Window Level Enables manual window leveling to adjust luminosity and contrast. .
	Contrast Inversion Inverts contrast for all images of series.

Note: When an image is contrast inverted, the inversion is not applied in the air (DICOM pixel padding value / range) but only on the breast.

	Default Windowing Goes back to default windowing for all images of series.
	**DICOM GSPS Reader** SE Web Client can read and apply DICOM GSPS on images. User can select the GSPS (when existing) to be applied via the drop down list.
	Clear all Measurements Clicking this button removes all measurements on images of series (distances, angles, ROI, othopaedic …).
	Browse in image
	Previous/Next series
	Previous/Next page
	Previous/Next image
	Zoom factors list shortcut button
	100% Zoom factor button
	Image Flip/Rotation

	Show Slices Position (Scout View) When displaying acquisition related series, switching this function ON displays lines corresponding to spatial positions of slices.
	Automatic Synchronization Use this button to automatically synchronize series.
	Manual Synchronization Use this button to manually synchronize series**.**
	Start / Stop Cine Use this button to stat or stop playing cine of selected series / sequence. This can also be done pressing the <Space> bar on the keyboard.
	Previous Frame When cine play is stopped, displays previous frame in selected series / sequence.
	Next Frame When cine play is stopped, displays next frame in selected series / sequence.
	Cine Speed Use this slider to adjust cine speed.
	Browse Frames When cine play is stopped, use this slider to quickly browse in series / sequence frames.

WARNING: In web client, it is possible to display instances (series/images/reports) from different patients.

Appendix

Appendix A - Keyboard shortcuts

This chapter covers the following topics:

❑ SE Client keyboard shortcuts

SE Client keyboard shortcuts

Key	Action
General to application	
F2	Open / Close Image Browser
F3	Open / Close display format window
F4	Open / Close print layout
Image Browser, images thumbnails view	
F2	Open / Close Image Browser
F5	Refresh window list
Enter	Mark image corresponding to selected thumbnail
Ctrl-A	Select all image thumbnails
Ctrl-D	Unselect all image thumbnails
Ctrl-I	Invert thumbnails selection
Ctrl-K	Select thumbnails of marked images
Arrow Up	Select previous item in the list (not possible in Web Client)
Arrow Down	Select next item in the list (not possible in Web Client)
Page Up	Scroll the list of one page up
Page Down	Scroll the list of one page down
Displayed images	
F3	Open / Close display format window
F4	Open / Close print layout
F6	Open glossary
F7	Send marked and displayed images to print layout
0	Apply optimal windowing to images of the series
1	Apply custom windowing #1 to images of the series (if defined)
2	Apply custom windowing #2 to images of the series (if defined)
3	Apply custom windowing #3 to images of the series (if defined)
4	Apply custom windowing #4 to images of the series (if defined)
5	Apply custom windowing #5 to images of the series (if defined)
6	Apply custom windowing #6 to images of the series (if defined)
7	Apply custom windowing #7 to images of the series (if defined)
8	Apply custom windowing #8 to images of the series (if defined)
9	Apply custom windowing #9 to images of the series (if defined)
/	Invert windowing of images of the series
	Revert to default windowing of images of the series
Enter	Mark selected image
Space Bar	Start / Stop cine mode on selected image
Shift	In addition to a click, applies current function the reverse state defined for

Key	Action
	synchronization.
Tab	Activate the next opened series
Arrow Left	If element is a sequence, display previous frame of sequence
Arrow Right	If element is a sequence, display next frame of sequence
F6-*nn*	Select text having index *nn* in glossary, to place it on an image
Ctrl-A	Select all images of the displayed series
Ctrl-D	Unselect all images of the displayed series
Shift-F4	Close active series
Ctrl-F4	Close all series
Navigation in displayed images	
-	Display previous series of the patient
+	Display next series of the patient
Home	Display the first image of the series
End	Display the last image of the series
Page Up	Display the previous image page of the series
Page Down	Display the next image page of the series
Arrow Up	Display the previous image of the series
Arrow Down	Display the next image of the series
Print layout	
F4	Open / Close print layout window
F7	Send marked and displayed images to print layout
Ctrl	With drag-&-drop from display, place selected image or image portion in print layout.
Alt	With drag-&-drop from display, place selected image or image portion in print layout. If it is an image portion, its dimensions are adjusted to adapt to print layout dimensions.
Del	Delete selected image. Its place stays empty, next images in the layout are not shifted.
Backspace	Delete image previous to the one selected. Its place doesn't stay empty, next images in the layout are shifted to the left.
Insert	Insert a blank space before selected image.
Home	Display first page
End	Display end page
Page Up	Display previous page
Page Down	Display next page. If the last page is displayed, create a new empty page at the end and displays it.
Shift	Synchronize images in the layout (one action on an image is generalized to all).

Appendix B - Unicode typing in application

This chapter covers the following topics:

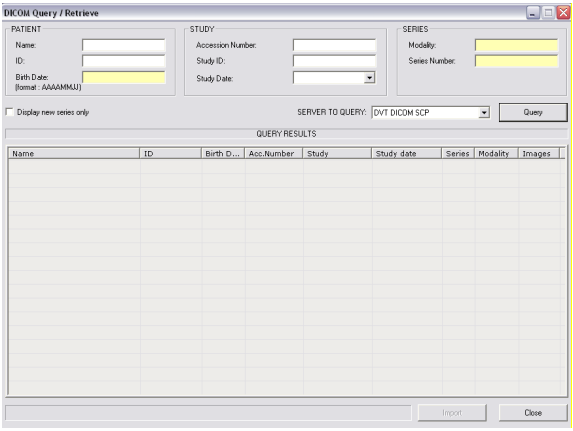
- ❑ Unicode typing rules in SE application
- ❑ Unicode and Display Fonts

Unicode typing in application

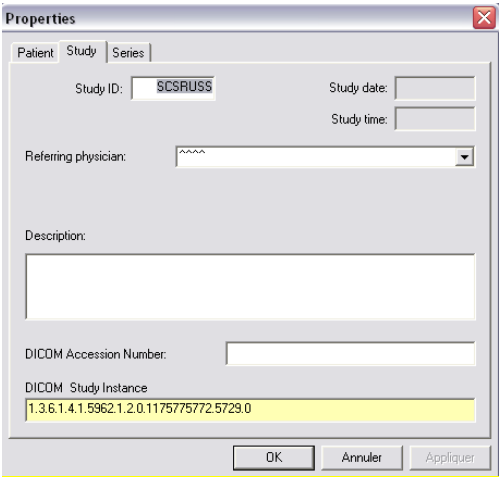
When using SE Suite applications, some windows can pop up with fields filled in yellow. This color code means that the corresponding field does not accept **Unicode** typing. In other words, yellow fields can only be used with Latin characters.

Here are some examples of fields prohibiting Unicode typing:

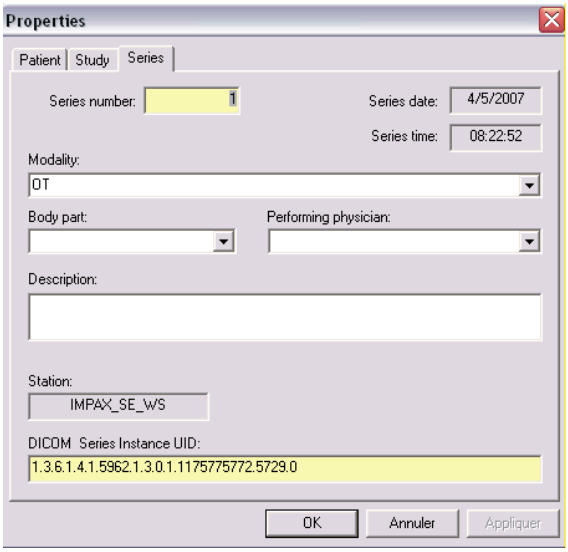
- **Query Retrieve Dialog box**



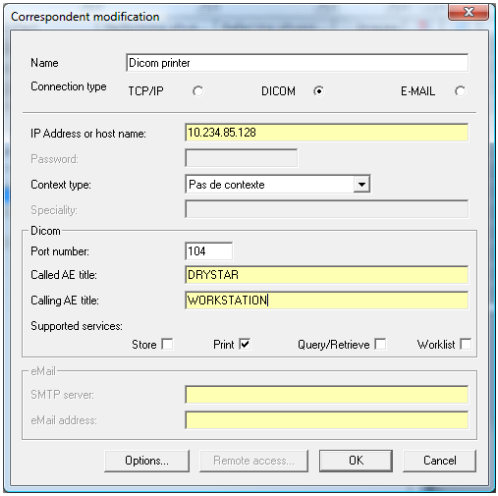
- **Study properties**



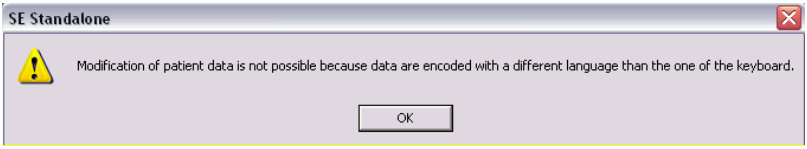
- **Series properties**



- **DICOM peripheral properties**



Note : For existing data, if character set of the DICOM patient data is not the same as the character set of the keyboard, modification is not allowed. The following error message will appear:


SE Standalone
Modification of patient data is not possible because data are encoded with a different language than the one of the keyboard.
OK

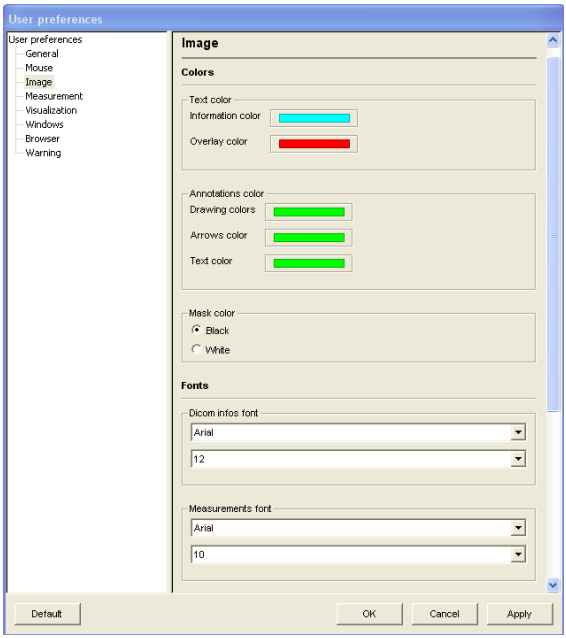
For new patient data, character set is based on the current keyboard

Unicode and Display Fonts

Depending on the configuration of your system (e.g. Operating System, Available Fonts, Regional and Language Options ...), Non Unicode fonts may not be correctly displayed (e.g. wrong representation of characters) when adding text on images. In this case, you need to select a Unicode font in the proposed list such as *Arial Unicode MS*.

This may happen when using/configuring:

- The Glossary (in 'Font, Colours ...' options)
- The Add text feature (in 'Properties')
- The User Preferences, section *Image*



Appendix C – DICOM Character String Maximum Length

This chapter covers the following topics:

❑DICOM Character String Maximum Length Table

DICOM Character String Maximum Length Table

Value	Maximum length
Character Set	50
Accession Number	16
Scheduled Station AE Title	16
Modality	16
Scheduled Performing Physician Name	64
Scheduled Procedure Step Description	64
Scheduled Station Name	16
Scheduled Procedure Step Location	16
PreMedication	64
Scheduled Procedure Step ID	16
Requested Contrast Agent	64
Scheduled Procedure Step Status	16
Requested Procedure ID	16
Requested Procedure Description	64
Requested Procedure Code Value	16
Requested Procedure Coding Scheme Version	16
Requested Procedure Coding Scheme Designator	16
Requested Procedure Code Meaning	64
Study Instance UID	64
Study Referenced SOP Class UID	64
Study Referenced SOP Instance UID	64
Requested Procedure Priority	16
Patient Transport Arrangements	64
Requested Procedure Location	64
Requesting Physician	64
Requesting Service	64
Referring Physician Name	64
Visit Status ID	16
Admission ID	64
Current Patient Location	50

Patient Institution Residence	64
Patient Referenced SOP Class UID	64
Patient Referenced SOP Instance UID	64
Patient Name	64
Patient ID	64
Patient Sex	16
Other Patient IDs	128
Other Patient Names	128
Patient Age	4
Patient Size	16
Patient Weight	16
Ethnic Group	16
Occupation	16
Confidentialy Constraint	64
Patient State	64
Medical Alerts	128
Contrast Allergies	128
Additional Patient History	255
Special Needs	64

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